

## DESCRIPTION OF SURVEY

The statistics in this publication were collected on Census Monthly Form M28A.2, Industrial Gases - Production, and represent complete coverage of the approximately 670 producers of elemental gases, carbon dioxide, and acetylene.

The current month's figures may include estimates for respondents whose reports were not received in time for tabulation. Such estimates are based on month-to-month trends shown by reporting firms and are generally limited to a maximum of 25 percent for any one item. Individual items with higher imputation rates are footnoted.

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The data are not adjusted for seasonal variation or number of working days.

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An annual Current Industrial Report covering production and shipments of industrial gases is published in this series. The annual report includes more historical data and product detail than are shown in the monthly reports, and also includes detail by States for a number of industrial gases. The report is numbered M28A, Supplement 2.

## EXPLANATION OF TERMS

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Stocks--Data shown for stocks represent quantities on hand, at the end of the month, at producing locations only, unless footnoted to indicate that the stock figure represents total stocks of producing companies including amounts held at locations other than producing plants.

# Industrial Gases

February 1974



Issued May 1974

SERIES: M28C(74)-2

The statistics in this publication are based on a survey of manufacturers and represent U.S. production and stocks of industrial gases. Estimates are included for companies whose reports were not received in time for tabulation. A more complete description of the survey appears on page 3.

TABLE 1.--SUMMARY OF PRODUCTION OF PRINCIPAL GASES: 1972 TO 1974

Month and year	Acetylene (2813200)  (Mil. cu. ft.)	Carbon dioxide, liquid and gas (281331)  (Short tons)	Carbon dioxide, solid (2813331)  (Short tons)	Hydrogen, high and low purity (100%)  (Mil. cu. ft.)	Nitrogen, high and low purity (100%)  (Mil. cu. ft.)	Oxygen, high and low purity (100%)  (Mil. cu. ft.)
1974						
February.....	631	83,228	19,514	5,705	18,115	30,059
January.....	626	87,021	22,309	5,719	20,043	32,684
1973						
December.....	665	91,808	22,035	5,801	19,733	33,329
November.....	663	91,929	23,990	5,647	19,215	33,035
October.....	653	102,479	28,636	5,909	19,953	34,092
September.....	622	84,572	31,151	5,482	19,203	31,959
August.....	650	100,845	35,132	5,664	19,484	31,867
July.....	627	99,474	33,902	5,329	19,221	32,328
June.....	633	89,366	30,271	5,627	18,601	31,273
May.....	659	87,283	25,186	5,010	19,326	32,203
April.....	661	79,999	22,219	4,680	18,035	31,627
March.....	717	86,164	21,379	4,958	18,544	32,945
February.....	855	78,450	19,116	4,235	16,969	29,286
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July.....	932	101,775	30,775	4,949	16,411	29,014
June.....	969	108,792	29,659	4,887	15,994	29,263
May.....	868	105,629	28,593	5,118	16,936	30,085
April.....	925	92,331	25,737	4,731	14,976	28,879
March.....	1,005	107,012	25,195	4,972	15,899	28,771
February.....	1,005	74,678	21,845	4,804	14,804	25,540

Inquiries concerning these figures should be addressed to the U.S. Department of Commerce, Bureau of the Census, Industry Division, Washington, D.C. 20233.



U.S. DEPARTMENT OF COMMERCE | Social and Economic Statistics Administration | BUREAU OF THE CENSUS

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SOCIAL AND ECONOMIC STATISTICS ADMINISTRATION LIBRARY

TABLE 2.--PRIMARY PRODUCTION OF SPECIFIED INDUSTRIAL GASES

SIC CODE	CHEMICAL AND BASIS	UNIT OF MEASURE	FEBRUARY 1974	JANUARY 1974	FEBRUARY 1973
			QUANTITY PRODUCED	QUANTITY PRODUCED	QUANTITY PRODUCED
2813200	ACETYLENE (1) . . . . .	MIL.CU.FT	631	626	855
	PRODUCED FOR PIPELINE SHIPMENT (EXCLUDING THAT SHIPPED TO BE COMPRESSED) . . . . .	DO	253	224	388
	PRODUCED FOR COMPRESSION, INCLUDING CYLINDER AND PIPELINE . . . . .	DO	378	402	120
	PRODUCED FOR CONSUMPTION IN THIS PLANT. . . . .	DO			347
2813415	ARGON, HIGH PURITY . . . . .	DO	383	363	335
	PRODUCED FOR CYLINDER AND BULK DELIVERY SHIPMENT . . . . .	DO	383	363	335
	PRODUCED FOR PIPELINE SHIPMENT. . . . .	DO	-	-	-
	PRODUCED FOR CONSUMPTION IN THIS PLANT. . . . .	DO	-	-	-
2813311	CARBON DIOXIDE:				
	LIQUID AND GAS (2) . . . . .	S.TONS	83,228	87,021	78,450
2813331	SOLID (DRY ICE) . . . . .	DO	19,514	22,309	19,116
2813420	HYDROGEN, TOTAL (3) . . . . .	MIL.CU.FT	5,705	5,719	4,235
	PRODUCED FOR CYLINDER AND BULK DELIVERY SHIPMENT . . . . .	DO	493	517	349
	LIQUID PRODUCED FOR CONVERSION TO GAS . . . . .	DO			
	PRODUCED FOR PIPELINE SHIPMENT. . . . .	DO	1,045	970	874
	LIQUID PRODUCED FOR GOVERNMENT USE. . . . .	DO			
	PRODUCED FOR CONSUMPTION IN THIS PLANT. . . . .	DO	4,167	4,232	3,012
2813440	NITROGEN, TOTAL (4) . . . . .	DO	18,115	20,043	16,969
	GAS:				
	PRODUCED FOR CYLINDER AND BULK DELIVERY SHIPMENT. . . . .	DO	10,726	12,079	112
	PRODUCED FOR PIPELINE SHIPMENT . . . . .	DO			9,871
	PRODUCED FOR CONSUMPTION IN THIS PLANT . . . . .	DO	1,515	1,590	1,448
	LIQUID:				
	PRODUCED FOR CYLINDER AND BULK DELIVERY SHIPMENT. . . . .	DO	5,160	5,597	5,010
	PRODUCED FOR BULK SHIPMENT TO PIPELINES OR TO OTHER AIR SEPARATION PLANTS. . . . .	DO	714	777	459
	PRODUCED FOR CONSUMPTION IN THIS PLANT . . . . .	DO			69
2813450	OXYGEN, TOTAL. . . . .	DO	30,059	32,684	29,286
	GAS:				
	PRODUCED FOR CYLINDER AND BULK DELIVERY SHIPMENT. . . . .	DO	177	185	202
	PRODUCED FOR PIPELINE SHIPMENT . . . . .	DO	21,722	24,125	20,387
	PRODUCED FOR CONSUMPTION IN THIS PLANT . . . . .	DO	( <sup>5</sup> )	( <sup>5</sup> )	( <sup>5</sup> )
	LIQUID:				
	PRODUCED FOR CYLINDER AND BULK DELIVERY SHIPMENT. . . . .	DO	3,941	4,249	3,762
	PRODUCED FOR BULK SHIPMENT TO PIPELINES OR TO OTHER AIR SEPARATION PLANTS. . . . .	DO	890	816	868
	PRODUCED FOR CONSUMPTION IN THIS PLANT . . . . .	DO	<sup>5</sup> 3,331	<sup>5</sup> 3,309	<sup>5</sup> 4,067

-Represents zero. <sup>F</sup>Revised by 5 percent or more from previously published figures.

<sup>1</sup>Excludes quantities of acetylene produced and consumed by railroad shops, shipyards, and small establishments using portable generators.

<sup>2</sup>Excludes production of liquid and gas CO<sub>2</sub> converted to and reported as dry ice and also amounts converted from pure CO<sub>2</sub> (liquid or solid) purchased or received from other plants. Also excludes quantities produced and consumed in plants manufacturing soda ash or urea.

<sup>3</sup>Excludes quantities produced and consumed in the manufacture of methanol and ammonia, but includes an unspecified amount of hydrogen produced for sale or interplant transfer to plants consuming this gas in the production of ammonia. Also excludes amounts of hydrogen produced in petroleum refineries for captive use. However, of the total shown for lower purity hydrogen prior to 1969, 70 to 75 percent was accounted for by petroleum refiners with captive hydrogen production. Not all such petroleum refineries were canvassed in this survey.

<sup>4</sup>Excludes amounts produced and used in the manufacture of ammonia and ammonia derivatives.

<sup>5</sup>Data for oxygen (gas), produced for consumption in this plant, combined with data for oxygen (liquid), produced for consumption in this plant, to avoid disclosing figures for individual companies.

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## CURRENT INDUSTRIAL REPORTS

REFERENCE COPY

## Industrial Gases

March 1974



Issued June 1974

SERIES: M28C(74)-3

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TABLE 1.--SUMMARY OF PRODUCTION OF PRINCIPAL GASES: 1972 TO 1974

Month and year	Acetylene (2813200)  (Mil. cu. ft.)	Carbon dioxide, liquid and gas (281331)  (Short tons)	Carbon dioxide, solid (2813331)  (Short tons)	Hydrogen, high and low purity (100%)  (Mil. cu. ft.)	Nitrogen, high and low purity (100%)  (Mil. cu. ft.)	Oxygen, high and low purity (100%)  (Mil. cu. ft.)
<b>1974</b>						
March.....	628	94,357	22,159	5,954	19,918	33,465
February.....	631	83,124	19,484	5,699	18,126	30,062
January.....	626	87,021	22,309	5,719	20,043	32,684
<b>1973</b>						
December.....	665	91,608	22,035	5,801	19,733	33,329
November.....	663	91,929	23,990	5,647	19,215	33,035
October.....	653	102,479	28,636	5,909	19,953	34,092
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July.....	627	99,474	33,902	5,329	19,221	32,328
June.....	633	89,366	30,271	5,627	18,601	31,273
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			QUANTITY PRODUCED	QUANTITY PRODUCED	QUANTITY PRODUCED
2813200	ACETYLENE (1) . . . . .	MIL.CU.FT	628	631	717
	PRODUCED FOR PIPELINE SHIPMENT (EXCLUDING THAT SHIPPED TO BE COMPRESSED) . . . . .	DO	259	253	287
	PRODUCED FOR COMPRESSION, INCLUDING CYLINDER AND PIPELINE . . . . .	DO	369	378	127
	PRODUCED FOR CONSUMPTION IN THIS PLANT . . . . .	DO			303
2813415	ARGON, HIGH PURITY . . . . .	DO	399	382	355
	PRODUCED FOR CYLINDER AND BULK DELIVERY SHIPMENT . . . . .	DO	399	382	355
	PRODUCED FOR PIPELINE SHIPMENT . . . . .	DO	-	-	-
	PRODUCED FOR CONSUMPTION IN THIS PLANT . . . . .	DO	-	-	-
2813311	CARBON DIOXIDE: LIQUID AND GAS (2) . . . . .	S.TONS	94,357	83,124	86,164
2813331	SOLID (DRY ICE) . . . . .	DO	22,159	19,484	21,379
2813420	HYDROGEN, TOTAL (3) . . . . .	MIL.CU.FT	5,954	5,699	4,958
	PRODUCED FOR CYLINDER AND BULK DELIVERY SHIPMENT . . . . .	DO	561	490	513
	LIQUID PRODUCED FOR CONVERSION TO GAS . . . . .	DO			
	PRODUCED FOR PIPELINE SHIPMENT . . . . .	DO	1,049	1,044	1,058
	LIQUID PRODUCED FOR GOVERNMENT USE . . . . .	DO			
	PRODUCED FOR CONSUMPTION IN THIS PLANT . . . . .	DO	4,344	4,165	3,387
2813440	NITROGEN, TOTAL (4) . . . . .	DO	19,918	18,126	18,544
	GAS: PRODUCED FOR CYLINDER AND BULK DELIVERY SHIPMENT . . . . .	DO	11,495	10,731	114
	PRODUCED FOR PIPELINE SHIPMENT . . . . .	DO			10,532
	PRODUCED FOR CONSUMPTION IN THIS PLANT . . . . .	DO	1,619	1,514	1,527
	LIQUID: PRODUCED FOR CYLINDER AND BULK DELIVERY SHIPMENT . . . . .	DO	6,019	5,162	5,715
	PRODUCED FOR BULK SHIPMENT TO PIPELINES OR TO OTHER AIR SEPARATION PLANTS . . . . .	DO	785	719	518
	PRODUCED FOR CONSUMPTION IN THIS PLANT . . . . .	DO			138
2813450	OXYGEN, TOTAL . . . . .	DO	33,465	30,062	32,945
	GAS: PRODUCED FOR CYLINDER AND BULK DELIVERY SHIPMENT . . . . .	DO	186	177	229
	PRODUCED FOR PIPELINE SHIPMENT . . . . .	DO	24,160	21,722	23,444
	PRODUCED FOR CONSUMPTION IN THIS PLANT . . . . .	DO	( <sup>5</sup> )	( <sup>5</sup> )	( <sup>5</sup> )
	LIQUID: PRODUCED FOR CYLINDER AND BULK DELIVERY SHIPMENT . . . . .	DO	4,686	3,942	4,066
	PRODUCED FOR BULK SHIPMENT TO PIPELINES OR TO OTHER AIR SEPARATION PLANTS . . . . .	DO	986	890	951
	PRODUCED FOR CONSUMPTION IN THIS PLANT . . . . .	DO	<sup>5</sup> 344,732	<sup>5</sup> 3,331	<sup>5</sup> 4,255

-Represents zero.

<sup>1</sup>Excludes quantities of acetylene produced and consumed by railroad shops, shipyards, and small establishments using portable generators.<sup>2</sup>Excludes production of liquid and gas CO<sub>2</sub> converted to and reported as dry ice and also amounts converted from pure CO<sub>2</sub> (liquid or solid) purchased or received from other plants. Also excludes quantities produced and consumed in plants manufacturing soda ash or urea.<sup>3</sup>Excludes quantities produced and consumed in the manufacture of methanol and ammonia, but includes an unspecified amount of hydrogen produced for sale or interplant transfer to plants consuming this gas in the production of ammonia. Also excludes amounts of hydrogen produced in petroleum refineries for captive use. However, of the total shown for lower purity hydrogen prior to 1969, 70 to 75 percent was accounted for by petroleum refiners with captive hydrogen production. Not all such petroleum refineries were canvassed in this survey.<sup>4</sup>Excludes amounts produced and used in the manufacture of ammonia and ammonia derivatives.<sup>5</sup>Data for oxygen (gas), produced for consumption in this plant, combined with data for oxygen (liquid), produced for consumption in this plant, to avoid disclosing figures for individual companies.

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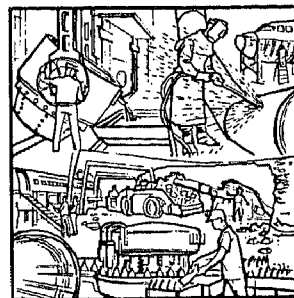
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April 1974



Issued June 1974

SERIES: M28C(74)-4

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February.....	631	83,124	19,484	5,699	18,126	30,062
January.....	626	87,021	22,309	5,719	20,043	32,684
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	PRODUCED FOR PIPELINE SHIPMENT (EXCLUDING THAT SHIPPED TO BE COMPRESSED) . . . . .	DO	271	260	289
	PRODUCED FOR COMPRESSION, INCLUDING CYLINDER AND PIPELINE . . . . .	DO	368	368	123
	PRODUCED FOR CONSUMPTION IN THIS PLANT . . . . .	DO			249
2813415	ARGON, HIGH PURITY . . . . .	DO	394	399	361
	PRODUCED FOR CYCLINDER AND BULK DELIVERY SHIPMENT . . . . .	DO	394	399	361
	PRODUCED FOR PIPELINE SHIPMENT . . . . .	DO	-	-	-
	PRODUCED FOR CONSUMPTION IN THIS PLANT . . . . .	DO	-	-	-
2813311	CARBON DIOXIDE:				
	LIQUID AND GAS (2) . . . . .	S.TONS	98,247	<sup>r</sup> 99,420	79,899
2813331	SOLID (DRY ICE) . . . . .	DO	24,584	22,020	22,219
2813420	HYDROGEN, TOTAL (3) . . . . .	MIL.CU.FT	5,879	5,956	4,680
	PRODUCED FOR CYLINDER AND BULK DELIVERY SHIPMENT . . . . .	DO	647	560	353
	LIQUID PRODUCED FOR CONVERSION TO GAS . . . . .	DO			
	PRODUCED FOR PIPELINE SHIPMENT . . . . .	DO	1,107	1,050	1,121
	LIQUID PRODUCED FOR GOVERNMENT USE . . . . .	DO			
	PRODUCED FOR CONSUMPTION IN THIS PLANT . . . . .	DO	4,125	4,346	3,206
2813440	NITROGEN, TOTAL (4) . . . . .	DO	18,974	20,238	18,035
	GAS:				
	PRODUCED FOR CYLINDER AND BULK DELIVERY SHIPMENT . . . . .	DO	11,168	11,768	85
	PRODUCED FOR PIPELINE SHIPMENT . . . . .	DO			10,426
	PRODUCED FOR CONSUMPTION IN THIS PLANT . . . . .	DO	1,519	<sup>r</sup> 1,721	1,481
	LIQUID:				
	PRODUCED FOR CYCLINDER AND BULK DELIVERY SHIPMENT . . . . .	DO	5,562	5,997	5,502
	PRODUCED FOR BULK SHIPMENT TO PIPELINES OR TO OTHER AIR SEPARATION PLANTS . . . . .	DO	725	752	415
	PRODUCED FOR CONSUMPTION IN THIS PLANT . . . . .	DO			126
2813450	OXYGEN, TOTAL . . . . .	DO	32,749	33,382	31,627
	GAS:				
	PRODUCED FOR CYLINDER AND BULK DELIVERY SHIPMENT . . . . .	DO	314	<sup>r</sup> 299	205
	PRODUCED FOR PIPELINE SHIPMENT . . . . .	DO	23,721	24,036	22,293
	PRODUCED FOR CONSUMPTION IN THIS PLANT . . . . .	DO	( <sup>s</sup> )	( <sup>s</sup> )	( <sup>s</sup> )
	LIQUID:				
	PRODUCED FOR CYLINDER AND BULK DELIVERY SHIPMENT . . . . .	DO	4,145	4,311	4,137
	PRODUCED FOR BULK SHIPMENT TO PIPELINES OR TO OTHER AIR SEPARATION PLANTS . . . . .	DO	878	973	921
	PRODUCED FOR CONSUMPTION IN THIS PLANT . . . . .	DO	<sup>s</sup> 3,691	<sup>s</sup> 3,763	<sup>s</sup> 4,071

-Represents zero. <sup>r</sup>Revised 5 percent or more from previously published figures.

<sup>1</sup>Excludes quantities of acetylene produced and consumed by railroad shops, shipyards, and small establishments using portable generators.

<sup>2</sup>Excludes production of liquid and gas CO<sub>2</sub> converted to and reported as dry ice and also amounts converted from pure CO<sub>2</sub> (liquid or solid) purchased or received from other plants. Also excludes quantities produced and consumed in plants manufacturing soda ash or urea.

<sup>3</sup>Excludes quantities produced and consumed in the manufacture of methanol and ammonia, but includes an unspecified amount of hydrogen produced for sale or interplant transfer to plants consuming this gas in the production of ammonia. Also excludes amounts of hydrogen produced in petroleum refineries for captive use. However, of the total shown for lower purity hydrogen prior to 1969, 70 to 75 percent was accounted for by petroleum refiners with captive hydrogen production. Not all such petroleum refineries were canvassed in this survey.

<sup>4</sup>Excludes amounts produced and used in the manufacture of ammonia and ammonia derivatives.

<sup>5</sup>Data for oxygen (gas), produced for consumption in this plant, combined with data for oxygen (liquid), produced for consumption in this plant, to avoid disclosing figures for individual companies.

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# CURRENT INDUSTRIAL REPORTS

REFERENCE COPY

## Industrial Gases

May 1974



Issued July 1974

SERIES: M28C(74)-5

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TABLE 1.--SUMMARY OF PRODUCTION OF PRINCIPAL GASES: 1972 TO 1974

Month and year	Acetylene (2813200) (Mil. cu. ft.)	Carbon dioxide, liquid and gas (281331) (Short tons)	Carbon dioxide, solid (2813331) (Short tons)	Hydrogen, high and low purity (100%) (Mil. cu. ft.)	Nitrogen, high and low purity (100%) (Mil. cu. ft.)	Oxygen, high and low purity (100%) (Mil. cu. ft.)
<b>1974</b>						
May.....	626	108,477	27,595	5,999	20,134	33,142
April.....	638	98,961	24,445	5,882	19,148	32,718
March.....	628	99,420	22,020	5,956	20,238	33,382
February.....	631	83,124	19,484	5,699	18,126	30,062
January.....	626	87,021	22,309	5,719	20,043	32,684
<b>1973</b>						
December.....	665	91,608	22,035	5,801	19,733	33,329
November.....	663	91,929	23,990	5,647	19,215	33,035
October.....	653	102,479	28,636	5,909	19,953	34,092
September.....	622	84,572	31,151	5,482	19,203	31,959
August.....	650	100,845	35,132	5,654	19,484	31,667
July.....	627	99,474	33,902	5,329	19,221	32,328
June.....	633	89,366	30,271	5,627	18,601	31,273
May.....	659	87,283	25,186	5,010	19,326	32,203
April.....	661	79,999	22,219	4,680	18,035	31,627
March.....	717	86,164	21,379	4,958	18,544	32,945
February.....	855	78,450	19,116	4,235	16,969	29,286
January.....	965	80,592	21,304	4,674	17,273	30,253
<b>1972</b>						
December.....	993	86,837	19,059	4,981	17,316	32,065
November.....	983	97,937	20,996	4,995	16,827	30,992
October.....	984	101,385	26,404	5,043	17,260	31,796
September.....	912	103,875	28,273	4,973	16,302	29,269
August.....	961	109,330	30,558	4,686	16,697	29,064
July.....	932	101,775	30,775	4,949	16,411	29,014
June.....	969	108,792	29,659	4,887	15,994	29,263
May.....	868	105,629	28,593	5,118	15,936	30,085

<sup>x</sup> Revised by 5 percent or more from previously published figures.

Inquiries concerning these figures should be addressed to the U.S. Department of Commerce, Bureau of the Census, Industry Division, Washington, D.C. 20233.



U.S. DEPARTMENT OF COMMERCE | Social and Economic Statistics Administration | BUREAU OF THE CENSUS

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SOCIAL AND ECONOMIC STATISTICS ADMINISTRATION LIBRARY

TABLE 2.--PRIMARY PRODUCTION OF SPECIFIED INDUSTRIAL GASES

SIC CODE	CHEMICAL AND BASIS	UNIT OF MEASURE	MAY 1974 QUANTITY PRODUCED	APRIL 1974 QUANTITY PRODUCED	MAY 1973 QUANTITY PRODUCED
2813200	ACETYLENE (1) . . . . .	MIL. CU. FT	626	638	659
	PRODUCED FOR PIPELINE SHIPMENT (EXCLUDING THAT SHIPPED TO BE COMPRESSED) . . . . .	DO	255	271	300
	PRODUCED FOR COMPRESSION, INCLUDING CYLINDER AND PIPELINE . . . . .	DO			124
	PRODUCED FOR CONSUMPTION IN THIS PLANT. . . . .	DO	371	367	235
2813415	ARGON, HIGH PURITY . . . . .	DO	397	394	379
	PRODUCED FOR CYLINDER AND BULK DELIVERY SHIPMENT . . . . .	DO	397	394	379
	PRODUCED FOR PIPELINE SHIPMENT. . . . .	DO	-	-	-
	PRODUCED FOR CONSUMPTION IN THIS PLANT. . . . .	DO	-	-	-
2813311	CARBON DIOXIDE: LIQUID AND GAS (2) . . . . .	S. TONS	108,477	98,961	87,283
2813331	SOLID (DRY ICE) . . . . .	DO	27,595	24,445	25,186
2813420	HYDROGEN, TOTAL (3) . . . . .	MIL. CU. FT	5,999	5,882	5,010
	PRODUCED FOR CYLINDER AND BULK DELIVERY SHIPMENT . . . . .	DO			
	LIQUID PRODUCED FOR CONVERSION TO GAS . . . . .	DO	644	646	610
	PRODUCED FOR PIPELINE SHIPMENT. . . . .	DO			
	LIQUID PRODUCED FOR GOVERNMENT USE. . . . .	DO	1,052	1,102	1,037
	PRODUCED FOR CONSUMPTION IN THIS PLANT. . . . .	DO	4,303	4,134	3,363
2813440	NITROGEN, TOTAL (4) . . . . .	DO	20,134	19,148	19,326
	GAS: PRODUCED FOR CYLINDER AND BULK DELIVERY SHIPMENT. . . . .	DO			
	PRODUCED FOR PIPELINE SHIPMENT. . . . .	DO	11,932	11,290	88
	PRODUCED FOR CONSUMPTION IN THIS PLANT . . . . .	DO	1,407	1,512	11,499
	LIQUID: PRODUCED FOR CYLINDER AND BULK DELIVERY SHIPMENT. . . . .	DO	5,979	5,614	5,646
	PRODUCED FOR BULK SHIPMENT TO PIPELINES OR TO OTHER AIR SEPARATION PLANTS. . . . .	DO			
	PRODUCED FOR CONSUMPTION IN THIS PLANT . . . . .	DO	816	732	410
2813450	OXYGEN, TOTAL. . . . .	DO	33,142	32,718	32,203
	GAS: PRODUCED FOR CYLINDER AND BULK DELIVERY SHIPMENT. . . . .	DO	329	313	197
	PRODUCED FOR PIPELINE SHIPMENT . . . . .	DO	23,538	23,660	23,148
	PRODUCED FOR CONSUMPTION IN THIS PLANT . . . . .	DO	( <sup>5</sup> )	( <sup>5</sup> )	( <sup>5</sup> )
	LIQUID: PRODUCED FOR CYLINDER AND BULK DELIVERY SHIPMENT. . . . .	DO	4,417	4,180	4,436
	PRODUCED FOR BULK SHIPMENT TO PIPELINES OR TO OTHER AIR SEPARATION PLANTS. . . . .	DO	1,075	879	1,008
	PRODUCED FOR CONSUMPTION IN THIS PLANT . . . . .	DO	53,783	3,686	53,414

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<sup>1</sup>Revised by 5 percent or more from previously published figures.<sup>1</sup>Excludes quantities of acetylene produced and consumed by railroad shops, shipyards, and small establishments using portable generators.<sup>2</sup>Excludes production of liquid and gas CO<sub>2</sub> converted to and reported as dry ice and also amounts converted from pure CO<sub>2</sub> (liquid or solid) purchased or received from other plants. Also excludes quantities produced and consumed in plants manufacturing soda ash or urea.<sup>3</sup>Excludes quantities produced and consumed in the manufacture of methanol and ammonia, but includes an unspecified amount of hydrogen produced for sale or interplant transfer to plants consuming this gas in the production of ammonia. Also excludes amounts of hydrogen produced in petroleum refineries for captive use. However, of the total shown for lower purity hydrogen prior to 1969, 70 to 75 percent was accounted for by petroleum refiners with captive hydrogen production. Not all such petroleum refineries were canvassed in this survey.<sup>4</sup>Excludes amounts produced and used in the manufacture of ammonia and ammonia derivatives.<sup>5</sup>Data for oxygen (gas), produced for consumption in this plant combined with data for oxygen (liquid), produced for consumption in this plant, to avoid disclosure.

## DESCRIPTION OF SURVEY

The statistics in this publication were collected on Census Monthly Form M28A.2, Industrial Gases - Production, and represent complete coverage of the approximately 670 producers of elemental gases, carbon dioxide, and acetylene.

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# Industrial Gases

June 1974



Issued August 1974

SERIES: M28C(74)-6

The statistics in this publication are based on a survey of manufactures and represent U.S. production and stocks of industrial gases. Estimates are included for companies whose reports were not received in time for tabulation. A more complete description of the survey appears on page 3.

TABLE 1.--SUMMARY OF PRODUCTION OF PRINCIPAL GASES: 1972 TO 1974

Month and year	Acetylene (2813200)  (Mil. cu. ft.)	Carbon dioxide, liquid and gas (281331)  (Short tons)	Carbon dioxide, solid (2813331)  (Short tons)	Hydrogen, high and low purity (100%)  (Mil. cu. ft.)	Nitrogen, high and low purity (100%)  (Mil. cu. ft.)	Oxygen, high and low purity (100%)  (Mil. cu. ft.)
<b>1974</b>						
June.....	647	98,359	29,014	5,960	19,681	31,736
May.....	646	107,657	27,420	6,004	20,071	33,142
April.....	638	98,961	24,445	5,882	19,148	32,718
March.....	628	<sup>r</sup> 99,420	22,020	5,956	20,238	33,382
February.....	631	83,124	19,484	5,699	18,126	30,062
January.....	626	87,021	22,309	5,719	20,043	32,684
<b>1973</b>						
December.....	665	91,608	22,035	5,801	19,733	33,329
November.....	663	91,929	23,990	5,647	19,215	33,035
October.....	653	102,479	28,636	5,909	19,953	34,092
September.....	622	84,572	31,151	5,482	19,203	31,959
August.....	650	100,845	35,132	5,654	19,484	31,667
July.....	627	99,474	33,902	5,329	19,221	32,328
June.....	633	89,366	30,271	5,627	18,601	31,273
May.....	659	87,283	25,186	5,010	19,326	32,203
April.....	661	79,999	22,219	4,680	18,035	31,627
March.....	717	86,164	21,379	4,958	18,544	32,945
February.....	855	78,450	19,116	4,235	16,969	29,286
January.....	965	80,592	21,304	4,674	17,273	30,253
<b>1972</b>						
December.....	993	86,837	19,059	4,981	17,316	32,065
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October.....	984	101,385	26,404	5,043	17,260	31,796
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2813200	ACETYLENE (1) . . . . .	MIL.CU.FT	647	646	633
	PRODUCED FOR PIPELINE SHIPMENT (EXCLUDING THAT SHIPPED TO BE COMPRESSED) . . . . .	DO	282	277	270
	PRODUCED FOR COMPRESSION, INCLUDING CYLINDER AND PIPELINE . . . . .	DO	116	130	112
	PRODUCED FOR CONSUMPTION IN THIS PLANT. . . . .	DO	249	239	251
2813415	ARGON, HIGH PURITY . . . . .	DO	376	399	349
	PRODUCED FOR CYLINDER AND BULK DELIVERY SHIPMENT . . . . .	DO	376	399	349
	PRODUCED FOR PIPELINE SHIPMENT. . . . .	DO	-	-	-
	PRODUCED FOR CONSUMPTION IN THIS PLANT. . . . .	DO	-	-	-
2813311	CARBON DIOXIDE:				
	LIQUID AND GAS (2) . . . . .	S.TONS	98,359	107,657	89,366
2813331	SOLID (DRY ICE) . . . . .	DO	29,014	27,420	30,271
2813420	HYDROGEN, TOTAL (3) . . . . .	MIL.CU.FT	5,960	6,004	4,655
	PRODUCED FOR CYLINDER AND BULK DELIVERY SHIPMENT . . . . .	DO			
	LIQUID PRODUCED FOR CONVERSION TO GAS . . . . .	DO	529	648	564
	PRODUCED FOR PIPELINE SHIPMENT. . . . .	DO			
	LIQUID PRODUCED FOR GOVERNMENT USE. . . . .	DO	1,079	1,053	1,022
	PRODUCED FOR CONSUMPTION IN THIS PLANT. . . . .	DO	4,352	4,303	3,069
2813440	NITROGEN, TOTAL (4) . . . . .	DO	19,681	20,071	18,601
	GAS:				
	PRODUCED FOR CYLINDER AND BULK DELIVERY SHIPMENT. . . . .	DO	88	90	89
	PRODUCED FOR PIPELINE SHIPMENT . . . . .	DO	11,457	11,732	11,047
	PRODUCED FOR CONSUMPTION IN THIS PLANT . . . . .	DO	1,578	1,487	1,343
	LIQUID:				
	PRODUCED FOR CYLINDER AND BULK DELIVERY SHIPMENT. . . . .	DO	5,796	5,963	5,559
	PRODUCED FOR BULK SHIPMENT TO PIPELINES OR TO OTHER AIR SEPARATION PLANTS. . . . .	DO			
	PRODUCED FOR CONSUMPTION IN THIS PLANT . . . . .	DO	762	799	430
					133
2813450	OXYGEN, TOTAL. . . . .	DO	31,736	33,144	31,273
	GAS:				
	PRODUCED FOR CYLINDER AND BULK DELIVERY SHIPMENT. . . . .	DO	282	327	170
	PRODUCED FOR PIPELINE SHIPMENT . . . . .	DO	22,901	23,561	22,429
	PRODUCED FOR CONSUMPTION IN THIS PLANT . . . . .	DO	( <sup>5</sup> )	( <sup>5</sup> )	( <sup>5</sup> )
	LIQUID:				
	PRODUCED FOR CYLINDER AND BULK DELIVERY SHIPMENT. . . . .	DO	4,185	4,387	3,935
	PRODUCED FOR BULK SHIPMENT TO PIPELINES OR TO OTHER AIR SEPARATION PLANTS. . . . .	DO	844	1,075	829
	PRODUCED FOR CONSUMPTION IN THIS PLANT . . . . .	DO	3,524	3,794	3,910

-Represents zero.

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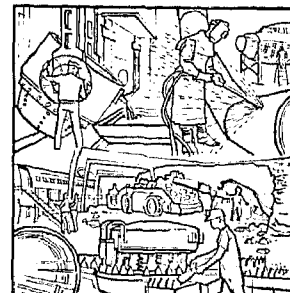
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## CURRENT INDUSTRIAL REPORTS

## Industrial Gases

July 1974



Issued October 1974

SERIES: M28C(74)-7

The statistics in this publication are based on a survey of manufactures and represent U.S. production and stocks of industrial gases. Estimates are included for companies whose reports were not received in time for tabulation. A more complete description of the survey appears on page 3.

TABLE 1.--SUMMARY OF PRODUCTION OF PRINCIPAL GASES: 1972 TO 1974

Month and year	Acetylene (2813200)  (Mil. cu. ft.)	Carbon dioxide, liquid and gas (281331)  (Short tons)	Carbon dioxide, solid (2813331)  (Short tons)	Hydrogen, high and low purity (100%)  (Mil. cu. ft.)	Nitrogen, high and low purity (100%)  (Mil. cu. ft.)	Oxygen, high and low purity (100%)  (Mil. cu. ft.)
1974						
July.....	547	98,359	34,127	6,244	19,978	31,884
June.....	615	99,803	29,014	5,960	19,550	31,467
May.....	646	107,657	27,420	6,004	20,071	33,142
April.....	638	98,961	24,445	5,882	19,148	32,718
March.....	628	99,420	22,020	5,956	20,238	33,362
February.....	631	83,124	19,484	5,699	18,126	30,062
January.....	626	87,021	22,309	5,719	20,043	32,684
1973						
December.....	665	91,608	22,035	5,801	19,733	33,329
November.....	663	91,929	23,990	5,647	19,215	33,035
October.....	653	102,479	28,636	5,909	19,953	34,092
September.....	622	84,572	31,151	5,482	19,203	31,959
August.....	650	100,845	35,132	5,654	19,484	31,667
July.....	627	99,474	33,902	5,329	19,221	32,328
June.....	633	89,366	30,271	5,627	18,601	31,273
May.....	659	87,283	25,186	5,010	19,326	32,203
April.....	661	79,999	22,219	4,680	18,035	31,627
March.....	717	86,184	21,379	4,958	18,544	32,945
February.....	855	78,450	19,116	4,235	16,969	29,286
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October.....	984	101,385	26,404	5,043	17,260	31,796
September.....	912	103,875	28,273	4,973	16,302	29,269
August.....	961	109,330	30,558	4,886	16,697	29,064
July.....	932	101,775	30,775	4,949	16,411	29,014

<sup>r</sup> Revised by 5 percent or more from previously published figures.

Inquiries concerning these figures should be addressed to the U.S. Department of Commerce, Bureau of the Census, Industry Division, Washington, D.C. 20233.

## SOCIAL AND ECONOMIC STATISTICS ADMINISTRATION LIBRARY

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TABLE 2.--PRIMARY PRODUCTION OF SPECIFIED INDUSTRIAL GASES

SIC CODE	CHEMICAL AND BASIS	UNIT OF MEASURE	JULY 1974 QUANTITY PRODUCED	JUNE 1974 QUANTITY PRODUCED	JULY 1973 QUANTITY PRODUCED
2813200	ACETYLENE (1) . . . . .	MIL.CU.FT	574	615	627
	PRODUCED FOR PIPELINE SHIPMENT (EXCLUDING THAT SHIPPED TO BE COMPRESSED) . . . . .	DO	236	250	278
	PRODUCED FOR COMPRESSION, INCLUDING CYLINDER AND PIPELINE . . . . .	DO	113	116	108
	PRODUCED FOR CONSUMPTION IN THIS PLANT. . . . .	DO	225	249	241
2813415	ARGON, HIGH PURITY . . . . .	DO	362	376	361
	PRODUCED FOR CYLINDER AND BULK DELIVERY SHIPMENT . . . . .	DO	362	376	361
	PRODUCED FOR PIPELINE SHIPMENT. . . . .	DO	-	-	-
	PRODUCED FOR CONSUMPTION IN THIS PLANT. . . . .	DO	-	-	-
2813311	CARBON DIOXIDE: LIQUID AND GAS (2) . . . . .	S.TONS	98,359	99,803	92,313
2813331	SOLID (DRY ICE) . . . . .	DO	34,127	29,014	33,902
2813420	HYDROGEN, TOTAL (3) . . . . .	MIL.CU.FT	6,244	5,960	4,948
	PRODUCED FOR CYLINDER AND BULK DELIVERY SHIPMENT . . . . .	DO			
	LIQUID PRODUCED FOR CONVERSION TO GAS . . . . .	DO	545	530	563
	PRODUCED FOR PIPELINE SHIPMENT. . . . .	DO	1,209	1,077	1,075
	LIQUID PRODUCED FOR GOVERNMENT USE. . . . .	DO			
	PRODUCED FOR CONSUMPTION IN THIS PLANT. . . . .	DO	4,490	4,353	3,310
2813440	NITROGEN, TOTAL (4) . . . . .	DO	19,978	19,550	19,221
	GAS: PRODUCED FOR CYLINDER AND BULK DELIVERY SHIPMENT . . . . .	DO	248	<sup>r</sup> 173	82
	PRODUCED FOR PIPELINE SHIPMENT . . . . .	DO	11,468	11,287	11,260
	PRODUCED FOR CONSUMPTION IN THIS PLANT . . . . .	DO	1,521	1,597	1,423
	LIQUID: PRODUCED FOR CYLINDER AND BULK DELIVERY SHIPMENT . . . . .	DO	5,888	5,732	5,808
	PRODUCED FOR BULK SHIPMENT TO PIPELINES OR TO OTHER AIR SEPARATION PLANTS. . . . .	DO	853	761	406
	PRODUCED FOR CONSUMPTION IN THIS PLANT . . . . .	DO			242
2813450	OXYGEN, TOTAL. . . . .	DO	31,884	31,467	32,328
	GAS: PRODUCED FOR CYLINDER AND BULK DELIVERY SHIPMENT . . . . .	DO	300	<sup>r</sup> 293	175
	PRODUCED FOR PIPELINE SHIPMENT . . . . .	DO	23,717	22,986	23,279
	PRODUCED FOR CONSUMPTION IN THIS PLANT . . . . .	DO	( <sup>s</sup> )	( <sup>s</sup> )	( <sup>s</sup> )
	LIQUID: PRODUCED FOR CYLINDER AND BULK DELIVERY SHIPMENT . . . . .	DO	3,838	4,103	4,070
	PRODUCED FOR BULK SHIPMENT TO PIPELINES OR TO OTHER AIR SEPARATION PLANTS. . . . .	DO	783	834	738
	PRODUCED FOR CONSUMPTION IN THIS PLANT . . . . .	DO	<sup>s</sup> 3,246	<sup>s</sup> 3,251	<sup>s</sup> 4,066

- Represents zero. <sup>r</sup>Revised by 5 percent or more from previously published figures.

<sup>1</sup>Excludes quantities of acetylene produced and consumed by railroad shops, shipyards, and small establishments using portable generators.

<sup>2</sup>Excludes production of liquid and gas CO<sub>2</sub> converted to and reported as dry ice and also amounts converted from pure CO<sub>2</sub> (liquid or solid) purchased or received from other plants. Also excludes quantities produced and consumed in plants manufacturing soda ash or urea.

<sup>3</sup>Excludes quantities produced and consumed in the manufacture of methanol and ammonia, but includes an unspecified amount of hydrogen produced for sale or interplant transfer to plants consuming this gas in the production of ammonia. Also excludes amounts of hydrogen produced in petroleum refineries for captive use. However, of the total shown for lower purity hydrogen prior to 1969, 70 to 75 percent was accounted for by petroleum refiners with captive hydrogen production. Not all such petroleum refineries were canvassed in this survey.

<sup>4</sup>Excludes amounts produced and used in the manufacture of ammonia and ammonia derivatives.

<sup>5</sup>Data for oxygen (gas), produced for consumption in this plant, combined with data for oxygen (liquid) produced for consumption in this plant to avoid disclosing figures for individual companies.

## DESCRIPTION OF SURVEY

The statistics in this publication were collected on Census Monthly Form M28A.2, Industrial Gases - Production, and represent complete coverage of the approximately 670 producers of elemental gases, carbon dioxide, and acetylene.

The current month's figures may include estimates for respondents whose reports were not received in time for tabulation. Such estimates are based on month-to-month trends shown by reporting firms and are generally limited to a maximum of 25 percent for any one item. Individual items with higher imputation rates are footnoted.

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The data are not adjusted for seasonal variation or number of working days.

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## EXPLANATION OF TERMS

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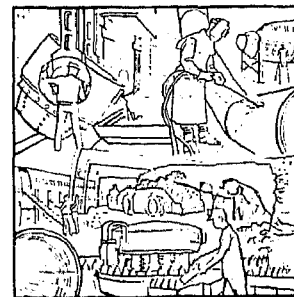
Stocks--Data shown for stocks represent quantities on hand, at the end of the month, at producing locations only, unless footnoted to indicate that the stock figure represents total stocks of producing companies including amounts held at locations other than producing plants.

# CURRENT INDUSTRIAL REPORTS

REFERENCE COPY

## Industrial Gases

August 1974



Issued November 1974

SERIES: M28C(74)-8

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Month and year	Acetylene (2813200) (Mil. cu. ft.)	Carbon dioxide, liquid and gas (281331) (Short tons)	Carbon dioxide, solid (2813331) (Short tons)	Hydrogen, high and low purity (100%) (Mil. cu. ft.)	Nitrogen, high and low purity (100%) (Mil. cu. ft.)	Oxygen, high and low purity (100%) (Mil. cu. ft.)
<b>1974</b>						
August.....	594	95,915	32,742	5,849	20,183	31,160
July.....	571	44,503	32,771	6,233	19,819	31,810
June.....	615	99,803	29,014	5,960	19,550	31,467
May.....	646	107,657	27,420	6,004	20,071	33,142
April.....	638	98,961	24,445	5,882	19,148	32,718
March.....	628	99,420	22,020	5,956	20,238	33,382
February.....	631	83,124	19,484	5,699	18,126	30,062
January.....	626	87,021	22,309	5,719	20,043	32,684
<b>1973</b>						
December.....	665	91,608	22,035	5,801	19,733	33,329
November.....	663	91,929	23,990	5,847	19,215	33,035
October.....	653	102,479	28,636	5,909	19,953	34,092
September.....	622	84,572	31,151	5,482	19,203	31,959
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2813200	ACETYLENE (1) . . . . .	MIL. CU. FT	594	571	662
	PRODUCED FOR PIPELINE SHIPMENT (EXCLUDING THAT SHIPPED TO BE COMPRESSED) . . . . .	DO	266	233	280
	PRODUCED FOR COMPRESSION, INCLUDING CYLINDER AND PIPELINE . . . . .	DO	119	113	132
	PRODUCED FOR CONSUMPTION IN THIS PLANT . . . . .	DO	209	225	250
2813415	ARGON, HIGH PURITY . . . . .	DO	383	363	347
	PRODUCED FOR CYLINDER AND BULK DELIVERY SHIPMENT . . . . .	DO	383	363	347
	PRODUCED FOR PIPELINE SHIPMENT . . . . .	DO	-	-	(NA)
	PRODUCED FOR CONSUMPTION IN THIS PLANT . . . . .	DO	-	-	(NA)
2813311	CARBON DIOXIDE: LIQUID AND GAS (2) . . . . .	S. TONS	95,915	94,503	109,081
2813331	SOLID (DRY ICE) . . . . .	DO	32,742	32,771	39,343
2813420	HYDROGEN, TOTAL (3) . . . . .	MIL. CU. FT	5,849	6,233	5,395
	PRODUCED FOR CYLINDER AND BULK DELIVERY SHIPMENT . . . . .	DO	521	555	416
	LIQUID PRODUCED FOR CONVERSION TO GAS . . . . .	DO			
	PRODUCED FOR PIPELINE SHIPMENT . . . . .	DO	1,151	1,208	1,098
	LIQUID PRODUCED FOR GOVERNMENT USE . . . . .	DO	4,177	4,470	3,881
	PRODUCED FOR CONSUMPTION IN THIS PLANT . . . . .	DO			
2813440	NITROGEN, TOTAL (4) . . . . .	DO	20,183	19,819	19,344
	GAS: PRODUCED FOR CYLINDER AND BULK DELIVERY SHIPMENT . . . . .	DO	233	248	30
	PRODUCED FOR PIPELINE SHIPMENT . . . . .	DO	11,230	11,320	11,201
	PRODUCED FOR CONSUMPTION IN THIS PLANT . . . . .	DO	1,713	1,521	1,679
	LIQUID: PRODUCED FOR CYLINDER AND BULK DELIVERY SHIPMENT . . . . .	DO	6,176	5,897	5,786
	PRODUCED FOR BULK SHIPMENT TO PIPELINES OR TO OTHER AIR SEPARATION PLANTS . . . . .	DO	831	833	425
	PRODUCED FOR CONSUMPTION IN THIS PLANT . . . . .	DO			223
2813450	OXYGEN, TOTAL . . . . .	DO	31,160	31,810	32,672
	GAS: PRODUCED FOR CYLINDER AND BULK DELIVERY SHIPMENT . . . . .	DO	298	300	23
	PRODUCED FOR PIPELINE SHIPMENT . . . . .	DO	22,806	23,665	23,179
	PRODUCED FOR CONSUMPTION IN THIS PLANT . . . . .	DO	( <sup>5</sup> )	( <sup>5</sup> )	( <sup>5</sup> )
	LIQUID: PRODUCED FOR CYLINDER AND BULK DELIVERY SHIPMENT . . . . .	DO	4,231	3,825	3,740
	PRODUCED FOR BULK SHIPMENT TO PIPELINES OR TO OTHER AIR SEPARATION PLANTS . . . . .	DO	836	774	967
	PRODUCED FOR CONSUMPTION IN THIS PLANT . . . . .	DO	<sup>5</sup> 3,189	<sup>5</sup> 3,246	<sup>5</sup> 4,763

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<sup>1</sup>Excludes quantities of acetylene produced and consumed by railroad shops, shipyards, and small establishments using portable generators.

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# CURRENT INDUSTRIAL REPORTS

REFERENCE COPY

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September 1974



Issued November 1974

SERIES: M28C(74)-9

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SIC CODE	CHEMICAL AND BASIS	UNIT OF MEASURE	SEPTEMBER 1974 QUANTITY PRODUCED	AUGUST 1974 QUANTITY PRODUCED	SEPTEMBER 1973 QUANTITY PRODUCED
2813200	ACETYLENE (1) . . . . .	MIL.CU.FT.	614	594	651
	PRODUCED FOR PIPELINE SHIPMENT (EXCLUDING THAT SHIPPED TO BE COMPRESSED) . . . . .	DO	269	266	260
	PRODUCED FOR COMPRESSION, INCLUDING CYLINDER AND PIPELINE . . . . .	DO	121	119	126
	PRODUCED FOR CONSUMPTION IN THIS PLANT . . . . .	DO	224	209	265
2813415	ARGON, HIGH PURITY . . . . .	DO	403	383	358
	PRODUCED FOR CYLINDER AND BULK DELIVERY SHIPMENT . . . . .	DO	403	383	358
	PRODUCED FOR PIPELINE SHIPMENT . . . . .	DO	-	-	(NA)
	PRODUCED FOR CONSUMPTION IN THIS PLANT . . . . .	DO	-	-	(NA)
2813311	CARBON DIOXIDE:				
	LIQUID AND GAS (2) . . . . .	S.TONS	101,585	98,400	100,006
2813331	SOLID (DRY ICE) . . . . .	DO	28,549	32,742	35,379
2813420	HYDROGEN, TOTAL (3) . . . . .	MIL.CU.FT.	5,898	5,981	5,337
	PRODUCED FOR CYLINDER AND BULK DELIVERY SHIPMENT . . . . .	DO	520	521	472
	LIQUID PRODUCED FOR CONVERSION TO GAS . . . . .	DO			
	PRODUCED FOR PIPELINE SHIPMENT . . . . .	DO	1,221	1,283	1,035
	LIQUID PRODUCED FOR GOVERNMENT USE . . . . .	DO			
	PRODUCED FOR CONSUMPTION IN THIS PLANT . . . . .	DO	4,157	4,177	3,830
2813440	NITROGEN, TOTAL (4) . . . . .	DO	20,236	20,182	19,425
	GAS:				
	PRODUCED FOR CYLINDER AND BULK DELIVERY SHIPMENT . . . . .	DO	330	327	19
	PRODUCED FOR PIPELINE SHIPMENT . . . . .	DO	11,604	11,138	11,106
	PRODUCED FOR CONSUMPTION IN THIS PLANT . . . . .	DO	1,574	1,710	1,743
	LIQUID:				
	PRODUCED FOR CYLINDER AND BULK DELIVERY SHIPMENT . . . . .	DO	5,928	6,176	5,864
	PRODUCED FOR BULK SHIPMENT TO PIPELINES OR TO OTHER AIR SEPARATION PLANTS . . . . .	DO			
	PRODUCED FOR CONSUMPTION IN THIS PLANT . . . . .	DO	800	831	693
2813450	OXYGEN, TOTAL . . . . .	DO	32,591	31,632	33,060
	GAS:				
	PRODUCED FOR CYLINDER AND BULK DELIVERY SHIPMENT . . . . .	DO	334	298	26
	PRODUCED FOR PIPELINE SHIPMENT . . . . .	DO	23,781	23,079	23,321
	PRODUCED FOR CONSUMPTION IN THIS PLANT . . . . .	DO	( <sup>5</sup> )	( <sup>5</sup> )	( <sup>5</sup> )
	LIQUID:				
	PRODUCED FOR CYLINDER AND BULK DELIVERY SHIPMENT . . . . .	DO	4,228	4,231	4,175
	PRODUCED FOR BULK SHIPMENT TO PIPELINES OR TO OTHER AIR SEPARATION PLANTS . . . . .	DO	938	835	807
	PRODUCED FOR CONSUMPTION IN THIS PLANT . . . . .	DO	5,310	5,189	4,731

- Represents zero. <sup>1</sup>Revised by 5 percent or more from previously published figures.

<sup>1</sup>Excludes quantities of acetylene produced and consumed by railroad shops, shipyards, and small establishments using portable generators.

<sup>2</sup>Excludes production of liquid and gas CO<sub>2</sub> converted to and reported as dry ice and also amounts converted from pure CO<sub>2</sub> (liquid or solid) purchased or received from other plants. Also excludes quantities produced and consumed in plants manufacturing soda ash or urea.

<sup>3</sup>Excludes quantities produced and consumed in the manufacture of methanol and ammonia, but includes an unspecified amount of hydrogen produced for sale or interplant transfer to plants consuming this gas in the production of ammonia. Also excludes amounts of hydrogen produced in petroleum refineries for captive use. However, of the total shown for lower purity hydrogen prior to 1969, 70 to 75 percent was accounted for by petroleum refiners with captive hydrogen production. Not all such petroleum refineries were canvassed in this survey.

<sup>4</sup>Excludes amounts produced and used in the manufacture of ammonia and ammonia derivatives.

<sup>5</sup>Data for oxygen (gas), produced for consumption in this plant, combined with data for oxygen (liquid) produced for consumption in this plant to avoid disclosing figures for individual companies.

## DESCRIPTION OF SURVEY

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REFERENCE COPY

## CURRENT INDUSTRIAL REPORTS

## Industrial Gases

October 1974



Issued January 1975

SERIES: M28C(74)-10

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TABLE 1.--SUMMARY OF PRODUCTION OF PRINCIPAL GASES: 1972 TO 1974

Month and year	Acetylene (2813200)  (Mil. cu. ft.)	Carbon dioxide, liquid and gas (281331)  (Short tons)	Carbon dioxide, solid (281331)  (Short tons)	Hydrogen, high and low purity (100%)  (Mil. cu. ft.)	Nitrogen, high and low purity (100%)  (Mil. cu. ft.)	Oxygen, high and low purity (100%)  (Mil. cu. ft.)
1974						
October.....	663	102,261	31,608	6,558	20,992	34,109
September.....	613	101,868	28,649	5,980	20,305	32,595
August.....	594	98,400	32,742	5,981	20,183	31,632
July.....	571	44,503	32,771	6,233	19,819	31,810
June.....	615	99,803	29,014	5,960	19,550	31,467
May.....	646	107,657	27,420	6,004	20,071	32,142
April.....	638	98,961	24,445	5,882	19,148	32,718
March.....	628	99,420	22,020	5,956	20,238	33,382
February.....	631	83,124	19,484	5,699	18,126	30,062
January.....	626	87,021	22,309	5,719	20,043	32,684
1973						
December.....	665	91,608	22,035	5,801	19,733	33,329
November.....	663	91,929	23,990	5,647	19,215	33,035
October.....	653	102,479	28,636	5,909	19,953	34,092
September.....	622	84,572	31,151	5,482	19,203	31,959
August.....	650	100,845	35,132	5,654	19,484	31,667
July.....	627	99,474	33,902	5,329	19,221	32,328
June.....	633	89,366	30,271	5,627	18,601	31,273
May.....	659	87,283	25,186	5,010	19,326	32,203
April.....	661	79,999	22,219	4,680	18,035	31,627
March.....	717	86,164	21,379	4,958	18,544	32,945
February.....	855	78,450	19,116	4,235	16,969	29,286
January.....	965	80,592	21,304	4,674	17,273	30,253
1972						
December.....	993	86,837	19,059	4,981	17,316	32,065
November.....	983	97,937	20,996	4,995	16,827	30,992
October.....	984	101,385	26,404	5,043	17,260	31,796

<sup>r</sup>Revised by 5 percent or more from previously published figures.

Inquiries concerning these figures should be addressed to the U.S. Department of Commerce, Bureau of the Census, Industry Division, Washington, D.C. 20233.

SOCIAL AND ECONOMIC STATISTICS ADMINISTRATION LIBRARY

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TABLE 2.--PRIMARY PRODUCTION OF SPECIFIED INDUSTRIAL GASES

PRODUCT CODE	CHEMICAL AND BASIS	UNIT OF MEASURE	OCTOBER 1974	SEPTEMBER 1974	OCTOBER 1973
			QUANTITY PRODUCED	QUANTITY PRODUCED	QUANTITY PRODUCED
2813200	ACETYLENE (1) . . . . . MIL,CU,FT		663	613	652
	PRODUCED FOR PIPELINE SHIPMENT (EXCLUDING THAT SHIPPED TO BE COMPRESSED) . . . . . DO		297	268	241
	PRODUCED FOR COMPRESSION, INCLUDING CYLINDER AND PIPELINE . . . . . DO		144	122	151
	PRODUCED FOR CONSUMPTION IN THIS PLANT. . . . . DO		222	223	260
2813415	ARGON, HIGH PURITY . . . . . DO		416	396	421
	PRODUCED FOR CYLINDER AND BULK DELIVERY SHIPMENT . . . . . DO		416	396	421
	PRODUCED FOR PIPELINE SHIPMENT. . . . . DO		-	-	(NA)
	PRODUCED FOR CONSUMPTION IN THIS PLANT. . . . . DO		-	-	(NA)
2813311	CARBON DIOXIDE: LIQUID AND GAS (2) . . . . . S.TONS		102,261	101,868	110,283
2813331	SOLID (DRY ICE) . . . . . DO		31,608	28,649	35,654
2813420	HYDROGEN, TOTAL (3) . . . . . MIL,CU,FT		6,558	5,980	5,805
	PRODUCED FOR CYLINDER AND BULK DELIVERY SHIPMENT . . . . . DO				
	LIQUID PRODUCED FOR CONVERSION TO GAS . . . . . DO		705	519	604
	PRODUCED FOR PIPELINE SHIPMENT. . . . . DO				
	LIQUID PRODUCED FOR GOVERNMENT USE. . . . . DO		1,369	1,286	1,152
	PRODUCED FOR CONSUMPTION IN THIS PLANT. . . . . DO		4,514	4,175	4,049
2813440	NITROGEN, TOTAL (4) . . . . . DO		20,992	20,305	19,950
	GAS: PRODUCED FOR CYLINDER AND BULK DELIVERY SHIPMENT. . . . . DO		251	330	32
	PRODUCED FOR PIPELINE SHIPMENT . . . . . DO		12,166	11,679	11,481
	PRODUCED FOR CONSUMPTION IN THIS PLANT . . . . . DO		1,593	1,574	1,809
	LIQUID: PRODUCED FOR CYLINDER AND BULK DELIVERY SHIPMENT. . . . . DO		5,997	5,930	5,948
	PRODUCED FOR BULK SHIPMENT TO PIPELINES OR TO OTHER AIR SEPARATION PLANTS. . . . . DO		761	530	408
	PRODUCED FOR CONSUMPTION IN THIS PLANT . . . . . DO		224	262	272
2813450	OXYGEN, TOTAL . . . . . DO		34,109	32,595	34,582
	GAS: PRODUCED FOR CYLINDER AND BULK DELIVERY SHIPMENT. . . . . DO		351	334	24
	PRODUCED FOR PIPELINE SHIPMENT . . . . . DO		24,930	23,781	24,257
	PRODUCED FOR CONSUMPTION IN THIS PLANT . . . . . DO		( <sup>5</sup> )	( <sup>5</sup> )	( <sup>5</sup> )
	LIQUID: PRODUCED FOR CYLINDER AND BULK DELIVERY SHIPMENT. . . . . DO		4,514	4,227	4,636
	PRODUCED FOR BULK SHIPMENT TO PIPELINES OR TO OTHER AIR SEPARATION PLANTS. . . . . DO		922	938	884
	PRODUCED FOR CONSUMPTION IN THIS PLANT . . . . . DO		3,392	3,315	4,781

- Represents zero. (NA) Not available.

<sup>1</sup>Revised by 5 percent or more from previously published figures<sup>1</sup>Excludes quantities of acetylene produced and consumed by railroad shops, shipyards, and small establishments using portable generators.<sup>2</sup>Excludes production of liquid and gas CO<sub>2</sub> converted to and reported as dry ice and also amounts converted from pure CO<sub>2</sub> (liquid or solid) purchased or received from other plants. Also excludes quantities produced and consumed in plants manufacturing soda ash or urea.<sup>3</sup>Excludes quantities produced and consumed in the manufacture of methanol and ammonia, but includes an unspecified amount of hydrogen produced for sale or interplant transfer to plants consuming this gas in the production of ammonia. Also excludes amounts of hydrogen produced in petroleum refineries for captive use. However, of the total shown for lower purity hydrogen prior to 1969, 70 to 75 percent was accounted for by petroleum refiners with captive hydrogen production. Not all such petroleum refineries were canvassed in this survey.<sup>4</sup>Excludes amounts produced and used in the manufacture of ammonia and ammonia derivatives.<sup>5</sup>Data for oxygen (gas), produced for consumption in this plant, combined with data for oxygen (liquid) produced for consumption in this plant to avoid disclosing figures for individual companies.

## DESCRIPTION OF SURVEY

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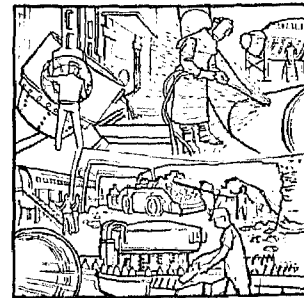
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REFERENCE COPY

## CURRENT INDUSTRIAL REPORTS

## Industrial Gases

November 1974



Issued February 1975

SERIES: M28C(74)-11

The statistics in this publication are based on a survey of manufactures and represent U.S. production and stocks of industrial gases. Estimates are included for companies whose reports were not received in time for tabulation. A more complete description of the survey appears on page 3.

TABLE 1.--SUMMARY OF PRODUCTION OF PRINCIPAL GASES: 1972 TO 1974

Month and year	Acetylene (2813200)  (Mil. cu. ft.)	Carbon dioxide, liquid and gas (281331)  (Short tons)	Carbon dioxide, solid (2813331)  (Short tons)	Hydrogen, high and low purity (100%)  (Mil. cu. ft.)	Nitrogen, high and low purity (100%)  (Mil. cu. ft.)	Oxygen, high and low purity (100%)  (Mil. cu. ft.)
<b>1974</b>						
November.....	636	84,640	19,831	6,081	18,899	32,527
October.....	687	<sup>r</sup> 95,555	30,154	6,578	20,702	34,085
September.....	613	101,868	28,649	5,980	20,305	32,595
August.....	594	98,400	32,742	5,981	20,183	31,632
July.....	571	44,503	32,771	6,233	19,819	31,810
June.....	615	99,803	29,014	5,960	19,550	31,467
May.....	646	107,657	27,420	6,004	20,071	33,142
April.....	638	98,961	24,445	5,882	19,148	32,718
March.....	628	<sup>r</sup> 99,420	22,020	5,956	20,238	33,382
February.....	631	83,124	19,484	5,699	18,126	30,062
January.....	626	87,021	22,309	5,719	20,043	32,684
<b>1973</b>						
December.....	665	91,608	22,035	5,801	19,733	33,329
November.....	663	91,929	23,990	5,647	19,215	33,035
October.....	653	102,479	28,636	5,909	19,953	34,092
September.....	622	84,572	31,151	5,482	19,203	31,959
August.....	650	100,845	35,132	5,654	19,484	31,667
July.....	627	99,474	33,902	5,329	19,221	32,328
June.....	633	89,366	30,271	5,627	18,601	31,273
May.....	659	87,283	25,186	5,010	19,326	32,203
April.....	661	79,999	22,219	4,680	18,035	31,627
March.....	717	86,164	21,379	4,958	18,544	32,945
February.....	855	78,450	19,116	4,235	16,969	29,286
January.....	965	80,592	21,304	4,674	17,273	30,253
<b>1972</b>						
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November.....	983	97,937	20,996	4,895	16,827	30,992

<sup>r</sup> Revised by 5 percent or more from previously published figures.

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2813200	ACETYLENE (1) . . . . .	MIL.CU.FT	636	667	669
	PRODUCED FOR PIPELINE SHIPMENT (EXCLUDING THAT SHIPPED TO BE COMPRESSED) . . . . .	DO	245	297	257
	PRODUCED FOR COMPRESSION, INCLUDING CYLINDER AND PIPELINE . . . . .	DO	128	148	145
	PRODUCED FOR CONSUMPTION IN THIS PLANT . . . . .	DO	263	222	267
2813415	ARGON, HIGH PURITY . . . . .	DO	390	420	393
	PRODUCED FOR CYLINDER AND BULK DELIVERY SHIPMENT . . . . .	DO			393
	PRODUCED FOR PIPELINE SHIPMENT . . . . .	DO	390	420	-
	PRODUCED FOR CONSUMPTION IN THIS PLANT . . . . .	DO			-
2813311	CARBON DIOXIDE: LIQUID AND GAS (2) . . . . .	S.TONS	84 640	95,555	106,044
2813331	SOLID (DRY ICE) . . . . .	DO	19,831	30,154	28,279
2813420	HYDROGEN, TOTAL (3) . . . . .	MIL.CU.FT	6,081	6,578	5,468
	PRODUCED FOR CYLINDER AND BULK DELIVERY SHIPMENT . . . . .	DO			
	LIQUID PRODUCED FOR CONVERSION TO GAS . . . . .	DO	624	703	551
	PRODUCED FOR PIPELINE SHIPMENT . . . . .	DO			
	LIQUID PRODUCED FOR GOVERNMENT USE . . . . .	DO	1,361	1,346	1,148
	PRODUCED FOR CONSUMPTION IN THIS PLANT . . . . .	DO	4,096	4,529	3,769
2813440	NITROGEN, TOTAL (4) . . . . .	DO	19,030	20,702	19,243
	GAS: PRODUCED FOR CYLINDER AND BULK DELIVERY SHIPMENT . . . . .	DO			
	PRODUCED FOR PIPELINE SHIPMENT . . . . .	DO	121	250	37
	PRODUCED FOR CONSUMPTION IN THIS PLANT . . . . .	DO	10,847	12,016	11,284
	LIQUID: PRODUCED FOR CYLINDER AND BULK DELIVERY SHIPMENT . . . . .	DO	1,608	1,585	1,699
	PRODUCED FOR BULK SHIPMENT TO PIPELINES OR TO OTHER AIR SEPARATION PLANTS . . . . .	DO			
	PRODUCED FOR CONSUMPTION IN THIS PLANT . . . . .	DO	5,537	5,925	5,561
	PRODUCED FOR CONSUMPTION IN THIS PLANT . . . . .	DO	672	702	375
	PRODUCED FOR CONSUMPTION IN THIS PLANT . . . . .	DO	245	224	287
2813450	OXYGEN, TOTAL . . . . .	DO	32,527	34,085	34,127
	GAS: PRODUCED FOR CYLINDER AND BULK DELIVERY SHIPMENT . . . . .	DO			
	PRODUCED FOR PIPELINE SHIPMENT . . . . .	DO	157	159	23
	PRODUCED FOR CONSUMPTION IN THIS PLANT . . . . .	DO	23,720	25,100	24,161
	LIQUID: PRODUCED FOR CYLINDER AND BULK DELIVERY SHIPMENT . . . . .	DO	( <sup>a</sup> )	( <sup>a</sup> )	( <sup>a</sup> )
	PRODUCED FOR BULK SHIPMENT TO PIPELINES OR TO OTHER AIR SEPARATION PLANTS . . . . .	DO			
	PRODUCED FOR CONSUMPTION IN THIS PLANT . . . . .	DO	4,452	4,514	4,435
	PRODUCED FOR CONSUMPTION IN THIS PLANT . . . . .	DO	938	920	901
	PRODUCED FOR CONSUMPTION IN THIS PLANT . . . . .	DO	3,260	3,392	4,607

- Represents zero.

<sup>1</sup>Excludes quantities of acetylene produced and consumed by railroad shops, shipyards, and small establishments using portable generators.<sup>2</sup>Excludes production of liquid and gas CO<sub>2</sub> converted to and reported as dry ice and also amounts converted from pure CO<sub>2</sub> (liquid or solid) purchased or received from other plants. Also excludes quantities produced and consumed in plants manufacturing soda ash or urea.<sup>3</sup>Excludes quantities produced and consumed in the manufacture of methanol and ammonia, but includes an unspecified amount of hydrogen produced for sale or interplant transfer to plants consuming this gas in the production of ammonia. Also excludes amounts of hydrogen produced in petroleum refineries for captive use. However, of the total shown for lower purity hydrogen prior to 1969, 70 to 75 percent was accounted for by petroleum refiners with captive hydrogen production. Not all such petroleum refineries were canvassed in this survey.<sup>4</sup>Excludes amounts produced and used in the manufacture of ammonia and ammonia derivatives.<sup>5</sup>Data for oxygen (gas), produced for consumption in this plant, combined with data for oxygen (liquid), produced for consumption in this plant to avoid disclosing figures for individual companies.

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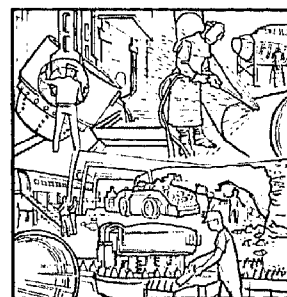
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REFERENCE COPY

## CURRENT INDUSTRIAL REPORTS

## Industrial Gases

December 1974



Issued February 1975

SERIES: M28C(74)-12

The statistics in this publication are based on a survey of manufactures and represent U.S. production and stocks of industrial gases. Estimates are included for companies whose reports were not received in time for tabulation. A more complete description of the survey appears on page 3.

TABLE 1.—SUMMARY OF PRODUCTION OF PRINCIPAL GASES: 1972 TO 1974

Month and year	Acetylene (2813200)  (Mil. cu. ft.)	Carbon dioxide, liquid and gas (281331)  (Short tons)	Carbon dioxide, solid (2813331)  (Short tons)	Hydrogen, high and low purity (100%)  (Mil. cu. ft.)	Nitrogen, high and low purity (100%)  (Mil. cu. ft.)	Oxygen, high and low purity (100%)  (Mil. cu. ft.)
<b>1974</b>						
December.....	602	90,616	20,937	5,644	19,570	31,747
November.....	637	86,509	19,838	6,059	18,949	32,359
October.....	667	95,555	30,154	6,578	20,702	34,085
September.....	613	101,868	28,649	5,980	20,305	32,595
August.....	594	98,400	32,742	5,981	20,383	31,632
July.....	571	94,503	32,771	6,233	19,819	31,810
June.....	615	99,803	29,014	5,960	19,550	31,487
May.....	646	107,657	27,420	6,004	20,071	33,142
April.....	638	98,961	24,445	5,882	19,148	32,718
March.....	628	99,420	22,020	5,956	20,238	33,382
February.....	631	83,124	19,484	5,699	18,126	30,062
January.....	626	87,021	22,309	5,719	20,043	32,684
<b>1973</b>						
December.....	665	91,608	22,035	5,801	19,733	33,329
November.....	663	91,929	23,990	5,647	19,215	33,035
October.....	653	102,479	28,636	5,909	19,953	34,092
September.....	622	84,572	31,151	5,482	19,203	31,959
August.....	650	100,845	35,132	5,654	19,484	31,667
July.....	627	99,474	33,902	5,329	19,221	32,328
June.....	633	89,366	30,271	5,627	18,601	31,273
May.....	659	87,283	25,186	5,010	19,326	32,203
April.....	661	79,999	22,219	4,680	18,035	31,627
March.....	717	86,164	21,379	4,958	18,544	32,945
February.....	855	78,450	19,116	4,235	16,969	29,286
January.....	965	80,592	21,304	4,674	17,273	30,253
<b>1972</b>						
December.....	993	86,837	19,059	4,981	17,316	32,065

<sup>r</sup> Revised by 5 percent or more from previously published figures.

Inquiries concerning these figures should be addressed to the U.S. Department of Commerce, Bureau of the Census, Industry Division, Washington, D.C. 20233.

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TABLE 2.--PRIMARY PRODUCTION OF SPECIFIED INDUSTRIAL GASES

PRODUCT CODE	CHEMICAL AND BASIS	UNIT OF MEASURE	DECEMBER 1974 QUANTITY PRODUCED	NOVEMBER 1974 QUANTITY PRODUCED	DECEMBER 1973 QUANTITY PRODUCED
2813200	ACETYLENE (1) . . . . .	MIL.CU.FT	602	637	665
	PRODUCED FOR PIPELINE SHIPMENT (EXCLUDING THAT SHIPPED TO BE COMPRESSED) . . . . .	DO	254	248	254
	PRODUCED FOR COMPRESSION, INCLUDING CYLINDER AND PIPELINE . . . . .	DO	124	127	411
	PRODUCED FOR CONSUMPTION IN THIS PLANT . . . . .	DO	224	262	
2813415	ARGON, HIGH PURITY . . . . .	DO	404	382	387
	PRODUCED FOR CYLINDER AND BULK DELIVERY SHIPMENT . . . . .	DO	404	382	376
	PRODUCED FOR PIPELINE SHIPMENT . . . . .	DO			-
	PRODUCED FOR CONSUMPTION IN THIS PLANT . . . . .	DO			-
2813311	CARBON DIOXIDE: LIQUID AND GAS (2) . . . . .	S.TONS	90,616	86,509	91,608
2813331	SOLID (DRY ICE) . . . . .	DO	19,838	20,937	22,035
2813420	HYDROGEN, TOTAL (3) . . . . .	MIL.CU.FT	5,644	6,059	5,801
	PRODUCED FOR CYLINDER AND BULK DELIVERY SHIPMENT . . . . .	DO	546	624	564
	LIQUID PRODUCED FOR CONVERSION TO GAS . . . . .	DO			
	PRODUCED FOR PIPELINE SHIPMENT . . . . .	DO	1,174	1,277	1,076
	LIQUID PRODUCED FOR GOVERNMENT USE . . . . .	DO			
	PRODUCED FOR CONSUMPTION IN THIS PLANT . . . . .	DO	3,924	4,158	4,161
2813440	NITROGEN, TOTAL (4) . . . . .	DO	19,570	18,949	19,733
	GAS: PRODUCED FOR CYLINDER AND BULK DELIVERY SHIPMENT . . . . .	DO	11,465	10,924	11,738
	PRODUCED FOR PIPELINE SHIPMENT . . . . .	DO			
	PRODUCED FOR CONSUMPTION IN THIS PLANT . . . . .	DO	1,624	1,592	1,572
	LIQUID: PRODUCED FOR CYLINDER AND BULK DELIVERY SHIPMENT . . . . .	DO	5,602	5,539	5,729
	PRODUCED FOR BULK SHIPMENT TO PIPELINES OR TO OTHER AIR SEPARATION PLANTS . . . . .	DO	609	643	447
	PRODUCED FOR CONSUMPTION IN THIS PLANT . . . . .	DO	270	251	247
2813450	OXYGEN, TOTAL . . . . .	DO	31,747	32,359	33,329
	GAS: PRODUCED FOR CYLINDER AND BULK DELIVERY SHIPMENT . . . . .	DO	150	157	185
	PRODUCED FOR PIPELINE SHIPMENT . . . . .	DO	22,970	23,570	22,856
	PRODUCED FOR CONSUMPTION IN THIS PLANT . . . . .	DO	( <sup>5</sup> )	( <sup>5</sup> )	( <sup>5</sup> )
	LIQUID: PRODUCED FOR CYLINDER AND BULK DELIVERY SHIPMENT . . . . .	DO	4,672	4,410	4,764
	PRODUCED FOR BULK SHIPMENT TO PIPELINES OR TO OTHER AIR SEPARATION PLANTS . . . . .	DO	759	962	946
	PRODUCED FOR CONSUMPTION IN THIS PLANT . . . . .	DO	3,196	3,260	4,578

- Represents zero.

<sup>1</sup>Excludes quantities of acetylene produced and consumed by railroad shops, shipyards, and small establishments using portable generators.

<sup>2</sup>Excludes production of liquid and gas CO<sub>2</sub> converted to and reported as dry ice and also amounts converted from pure CO<sub>2</sub> (liquid or solid) purchased or received from other plants. Also excludes quantities produced and consumed in plants manufacturing soda ash or urea.

<sup>3</sup>Excludes quantities produced and consumed in the manufacture of methanol and ammonia, but includes an unspecified amount of hydrogen produced for sale or interplant transfer to plants consuming this gas in the production of ammonia. Also excludes amounts of hydrogen produced in petroleum refineries for captive use. However, of the total shown for lower purity hydrogen prior to 1969, 70 to 75 percent was accounted for by petroleum refiners with captive hydrogen production. Not all such petroleum refineries were canvassed in this survey.

<sup>4</sup>Excludes amounts produced and used in the manufacture of ammonia and ammonia derivatives.

<sup>5</sup>Data for oxygen (gas), produced for consumption in this plant, combined with data for oxygen (liquid), produced for consumption in this plant to avoid disclosing figures for individual companies.

## DESCRIPTION OF SURVEY

The statistics in this publication were collected on Census Monthly Form M28A.2, Industrial Gases - Production, and represent complete coverage of the approximately 670 producers of elemental gases, carbon dioxide, and acetylene.

The current month's figures may include estimates for respondents whose reports were not received in time for tabulation. Such estimates are based on month-to-month trends shown by reporting firms and are generally limited to a maximum of 25 percent for any one item. Individual items with higher imputation rates are footnoted.

The imputation rate is not an explicit indicator of the potential error in published figures due to nonresponse, because the actual monthly movements for nonrespondents may or may not closely agree with the imputed movements. The probable range of difference between the actual and imputed figures is unknown. The degree of uncertainty regarding the accuracy of the data however, increases as the percentage of imputation increases. Figures with high imputation rates, therefore, should be used with caution.

Statistics for previous months may be revised, due to receipt of corrected data from respondents, including late reports for which estimates were made, and other corrections. Figures which were revised significantly are indicated by footnotes.

The data are not adjusted for seasonal variation or number of working days.

## RELATED REPORTS

Monthly Current Industrial Report, Inorganic Chemicals, Series M28A, includes production and stock data for specified inorganic chemicals. Monthly CIR report, Inorganic Fertilizer Materials and Related Acids, Series M28B, includes production and stock data for ammonia and ammonia compounds, phosphatic fertilizers, and sulfuric acid.

An annual Current Industrial Report covering production and shipments of industrial gases is published in this series. The annual report includes more historical data and product detail than are shown in the monthly reports, and also includes detail by States for a number of industrial gases. The report is numbered M28A, Supplement 2.

## EXPLANATION OF TERMS

Production--Data shown for production represent total quantity of each chemical produced, including quantity consumed in plants, and for sale or transfer to other plants or warehouses of the same company. The statistics presented in the tables provide an up-to-date measure of activity in the inorganic field, but do not necessarily indicate amounts entering the market. In some cases, figures are included for material produced "in process" as an intermediate to the end products.

Stocks--Data shown for stocks represent quantities on hand, at the end of the month, at producing locations only, unless footnoted to indicate that the stock figure represents total stocks of producing companies including amounts held at locations other than producing plants.

REFERENCE CURRENT INDUSTRIAL REPORTS

## Industrial Gases 1974 (Preliminary)



Issued April 1975

SERIES: M28C(74)-13

Annual data for 1974 shown in this release are a compilation of the monthly figures which have been appearing in this series. The figures for 1974 should be considered as preliminary and subject to revisions based on information furnished on Form MA-28E.2, **Annual Report on Shipments and Production of Industrial Gases.**

The statistics presented in the accompanying tables are for primary production, covering quantities produced for further processing in the same plant, for intracompany transfer, and for sale. They provide an up-to-date measure of activity in the inorganic field but do not necessarily indicate amounts entering the market. In some cases figures are included for material produced "in process" as an intermediate to the end products.

### ACKNOWLEDGMENTS

This report was prepared in the Industry Division under the direction of Robert J. Nealon, Chief, Current Nondurables Branch. John Ambler, assisted by Marjorie Joiner, was directly responsible for the review of the data and preparation of the report. Milton Eisen, Chief of the Division, and James Werking, Assistant Chief for Current Programs, provided overall direction and coordination to this project.

Inquiries concerning these figures should be addressed to the U.S. Department of Commerce, Bureau of the Census, Industry Division, Washington, D.C. 20233.



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## PRIMARY PRODUCTION OF SPECIFIED INDUSTRIAL GASES

Census product code	Chemical and basis	Unit of measure	Production	
			1974	1973
2813200	Acetylene <sup>1</sup> .....	.Mil.cu.ft..	7,470	8,278
	Produced for pipeline shipment (excluding that shipped to be compressed).....	.....do.....	3,101	3,483
	Produced for compression, including cylinder and pipeline.....	.....do.....	4,369	4,795
	Produced for consumption in this plant.....	.....do.....		
2813415	Argon, high purity.....	.....do.....	4,661	4,382
	Produced for cylinder and bulk delivery shipment.....	.....do.....	4,661	4,382
	Produced for pipeline shipment.....	.....do.....		
	Produced for consumption in this plant.....	.....do.....		
	Carbon dioxide:			
2813311	Liquid and gas <sup>2</sup> .....	S. tons....	1,143,588	1,195,136
2813331	Solid (dry ice).....	.....do.....	311,747	372,985
2813420	Hydrogen, total <sup>3</sup> .....	.Mil.cu.ft..	71,692	65,355
	Produced for cylinder and bulk delivery shipment.....	.....do.....	6,859	5,666
	Liquid produced for conversion to gas.....	.....do.....		
	Produced for pipeline shipment.....	.....do.....	13,870	13,148
	Liquid produced for government use.....	.....do.....		
	Produced for consumption in this plant.....	.....do.....	50,963	46,541
2813440	Nitrogen, total <sup>4</sup> .....	.....do.....	236,990	228,099
	Gas:			
	Produced for cylinder and bulk delivery shipment.....	.....do.....	139,122	133,758
	Produced for pipeline shipment.....	.....do.....		
	Produced for consumption in this plant.....	.....do.....	19,023	20,017
	Liquid:			
	Produced for cylinder and bulk delivery shipment.....	.....do.....	69,128	66,557
	Produced for bulk shipment to pipelines or to other air separation plants.....	.....do.....	9,717	4,974
	Produced for consumption in this plant.....	.....do.....		
2813450	Oxygen, total <sup>4</sup> .....	.....do.....	387,205	391,447
	Gas:			
	Produced for cylinder and bulk delivery shipment.....	.....do.....	362	354
	Produced for pipeline shipment.....	.....do.....	284,276	273,145
	Produced for consumption in this plant.....	.....do.....	( <sup>5</sup> )	( <sup>5</sup> )
	Liquid:			
	Produced for cylinder and bulk delivery shipment.....	.....do.....	51,070	49,166
	Produced for bulk shipment to pipelines or to other air separation plants.....	.....do.....	10,760	10,273
	Produced for consumption in this plant.....	.....do.....	<sup>5</sup> 40,737	58,509

<sup>1</sup>Excludes quantities of acetylene produced and consumed by railroad ships, shipyards, and small establishments using portable generators.

<sup>2</sup>Excludes production of liquid and gas CO<sub>2</sub> converted to and reported as dry ice and also amounts converted from pure CO<sub>2</sub> (liquid or solid) purchased or received from other plants. Also excludes quantities produced and consumed in plant manufacturing soda ash or urea.

<sup>3</sup>Excludes quantities produced and consumed in the manufacture of methanol and ammonia, but includes as unspecified amount of hydrogen produced for sale or interplant transfer to plants consuming this gas in the production of ammonia. Also excludes amounts of hydrogen produced in petroleum refineries for captive use.

<sup>4</sup>Excludes amounts produced and used in the manufacture of ammonia and ammonia derivatives.

<sup>5</sup>Data for oxygen (gas), produced for consumption in this plant, combined with data for oxygen (liquid), produced for consumption in this plant, to avoid disclosing figures for individual companies.



# CURRENT INDUSTRIAL REPORTS

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## Industrial Gases Seasonal Adjustment Supplement 1965 to 1974



Issued April 1975

SERIES: M28C Supplement—SA

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ACKNOWLEDGMENTS—This report was prepared in the Industry Division under the direction of Robert J. Nealon, Chief for Current Nondurables Branch. John H. Ambler, Jr., was directly responsible for the review of the data and preparation of the report. Milton Eisen, Chief of the Division, provided overall direction and coordination to this project.

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### SUGGESTED CITATION

U.S. Bureau of the Census, *Current Industrial Reports Series M28C, Industrial Gases, Supplement-SA, 1965-1974*. Washington, D.C. 1975

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## Introduction

This report presents seasonally adjusted data for a number of the most important series published monthly in Current Industrial Reports Series M28C, "Industrial Gases." The seasonal adjustment program largely eliminates the effect of normal seasonal variations (including variations due to vacations, weather, etc.) as measured over the time period for which data were used. The resulting information thus provides a better measure than the original data of the month-to-month variations which are due to factors that are not associated with a repetitive seasonal pattern.

The seasonal adjustments were made using the X-11 variant of the Census Bureau's seasonal adjustment program. The X-11 variant of the seasonal adjustment program has developed improved techniques for the treatment of extremes and a regression program to identify trading-day adjustment to the monthly aggregates. The trading-day routine is optional and has been used for the series presented in this publication. This program is amply described in the literature on this method.<sup>1</sup> It should be noted that the data included in this report have not been adjusted on an establishment basis, prior to tabulation for variation in the length of the reporting period such as 4-week, 5-week, or calendar month.

### Introduction

For each series included in this report the following tables are shown:

- (1) Seasonally adjusted data
- (2) Data without seasonal adjustment (original series)
- (3) Seasonal adjustment factors. The seasonally adjusted data are obtained by dividing the unadjusted data by the seasonal factors for the specific month.
- (4) Average percentage changes and related measures for each series

<sup>1</sup> *Electronic Computers and Business Indicators*, National Bureau of Economic Research Occasional Paper 57 (New York, 1957); *Tests and Revisions of Bureau of the Census Methods of Seasonal Adjustments*, Bureau of the Census Technical Paper No. 5 (Washington, 1961, \$1.00); *The X-11 Variant of the Census Method II Seasonal Adjustment Program*, Bureau of the Census Technical Paper No. 15 (Washington, 1967, \$0.50).

Beginning in April 1975, these seasonally adjusted data will be included in table 1 of the regular M28C report. That report also includes a detailed description of the survey, including a discussion of the scope and coverage of the report together with an explanation of the terms.

## TRADING-DAY FACTORS

Variation in the rate of activity that arises from the existence of different numbers of trading days in the same month for different years can be an important cause of month-to-month irregular fluctuations. Unlike some other causes of irregular fluctuations such as unexpected economic developments, unusual weather, and statistical errors, trading-day irregularities can be approximately identified and removed so that the underlying trend-cycle stands out more clearly. Hence, it is often possible to reduce the irregular factor by a trading-day adjustment.

### BRIEF DEFINITIONS OF MEASURES SHOWN IN TABLE 4

The following are brief definitions; more complete explanations appear in *Electronic Computers and Business Indicators*, by Julius Shiskin, issued as Occasional Paper 57 by the National Bureau of Economic Research, 1957 (reprinted from *Journal of Business*, October 1957).

$\overline{CI}$  is the average month-to-month percentage change, without regard to sign, in the seasonally adjusted series (i.e., the series after adjustment for measurable seasonal, trading-day, and holiday variations).

$\overline{I}$  is the same for the irregular component, obtained by dividing the cyclical component into the seasonally adjusted series.

$\overline{C}$  is the same for the cyclical component, a smooth, flexible moving average of the seasonally adjusted series.

$\overline{I/\overline{C}}$  is a measure of the relative smoothness (small values) or irregularity (large values) of the seasonally adjusted series. It is shown for 1-month spans and for spans of the period of MCD. When MCD is "6", no  $\overline{I/\overline{C}}$  ratio is shown for the MCD period.

**MCD** (months for cyclical dominance) provides an estimate of the appropriate time span over which to observe cyclical movements in a monthly series. It is small for smooth series and large for irregular series. In deriving MCD, percentage changes are computed separately for the irregular component and the cyclical component over 1-month spans (Jan.-Feb., Feb.-Mar., etc.), 2-months spans (Jan.-Mar., Feb.-Apr., etc.), up to 12-month spans. Averages, without regard to sign, are then computed for the changes over each span. MCD is the shortest span in months for which the average percentage change (without regard to sign) in the cyclical component is larger than the average percentage change (without regard to sign) in the irregular component, and remains so. Thus, it indicates the point at which fluctuations in the seasonally adjusted

series became dominated by cyclical rather than irregular movements. All series with an MCD greater than "5" are shown as "6."

**Average Duration of Run (ADR)** is another measure of smoothness and is equal to the average number of consecutive monthly changes in the same direction in any series of observations. When there is no change between 2 months, a change in the same direction as the preceding change is assumed. The ADR is shown for the seasonally adjusted series CI, irregular component I, cyclical component C, and the MCD curve. The MCD curve is an unweighted moving average (with the number of terms equal to MCD) of the seasonally adjusted series.

TABLE 1A.--ACETYLENE

FINAL SEASONALLY ADJUSTED SERIES

(MILLION CUBIC FEET)

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1965	1344.	1354.	1410.	1414.	1454.	1485.	1475.	1375.	1150.	1379.	1370.	1457.
1966	1331.	1324.	1454.	1372.	1359.	1408.	1342.	1453.	1444.	1393.	1360.	1349.
1967	1335.	1263.	1165.	1284.	1182.	1088.	1085.	1129.	1148.	1166.	1188.	1232.
1968	1206.	1235.	1324.	1287.	1258.	1258.	1284.	1260.	1213.	1234.	1229.	1246.
1969	1309.	1367.	1028.	1294.	1313.	1323.	1313.	1314.	1347.	1322.	1249.	1303.
1970	1348.	1355.	1207.	1312.	1270.	1607.	1217.	1154.	1142.	1065.	1057.	1016.
1971	932.	1045.	850.	1098.	1079.	1032.	1054.	1049.	1018.	1062.	1061.	1052.
1972	1014.	967.	1018.	965.	860.	989.	977.	948.	915.	927.	913.	981.
1973	866.	785.	724.	726.	679.	674.	668.	665.	665.	617.	619.	603.
1974	603.	649.	661.	657.	645.	633.	542.	604.	615.	620.	606.	587.

TABLE 1B.--CARBON DIOXIDE

FINAL SEASONALLY ADJUSTED SERIES

(SHORT TONS)

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1965	86440.	89586.	89304.	90968.	96140.	91449.	92038.	88384.	90934.	89860.	91048.	92131.
1966	81071.	87909.	92643.	89465.	89152.	92633.	91867.	93154.	92223.	93082.	92949.	85789.
1967	96514.	94415.	82357.	94021.	90593.	96792.	89496.	92242.	92643.	93049.	85627.	86899.
1968	89443.	81189.	79734.	77468.	84549.	83438.	91805.	91725.	87236.	90945.	101677.	99609.
1969	93406.	98554.	96530.	94831.	94867.	96012.	101502.	97004.	98934.	97415.	98170.	98403.
1970	96731.	105861.	97313.	94594.	103726.	94335.	88898.	92914.	98988.	90583.	87840.	94519.
1971	104666.	111939.	104727.	113070.	106941.	110659.	113392.	111832.	112204.	113169.	118511.	122374.
1972	130933.	113763.	136163.	129077.	133566.	138156.	135706.	138411.	135837.	138739.	139254.	133878.
1973	126566.	142994.	128903.	112855.	128166.	126926.	132265.	129394.	130461.	137602.	139944.	145151.
1974	122150.	115667.	124070.	127465.	126105.	123318.	115699.	119407.	122504.	120139.	110799.	129037.

TABLE 1C.--HYDROGEN

FINAL SEASONALLY ADJUSTED SERIES

(MILLION CUBIC FEET)

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1965	4250.	4823.	4522.	9892.	4713.	10096.	10625.	10637.	10754.	10521.	11135.	11014.
1966	10908.	11042.	13473.	12362.	11098.	11126.	11409.	11049.	11245.	11200.	11607.	11404.
1967	12633.	12037.	13117.	12946.	14176.	12982.	13807.	13534.	13040.	11628.	13333.	15132.
1968	16508.	16552.	15758.	15987.	17020.	17363.	16040.	16428.	17260.	17277.	18161.	16524.
1969	5459.	5755.	6287.	6075.	5524.	5559.	5122.	5409.	4976.	5081.	5065.	4798.
1970	4463.	5249.	5269.	5332.	5047.	5042.	4899.	4903.	4741.	4768.	4813.	4920.
1971	4439.	4560.	4774.	4811.	4666.	4638.	4698.	4601.	4431.	4807.	4649.	4743.
1972	4834.	4950.	4920.	4925.	4956.	4939.	4895.	4702.	5024.	4690.	5042.	5058.
1973	5369.	5337.	5537.	5322.	5489.	5238.	5500.	5494.	5507.	5448.	5546.	5625.
1974	5691.	5984.	5800.	5894.	5864.	6106.	6104.	6152.	6127.	6265.	6208.	5577.

TABLE 1D.--NITROGEN

FINAL SEASONALLY ADJUSTED SERIES

(MILLION CUBIC FEET)

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1965	5255.	5475.	5637.	5761.	5855.	6023.	6083.	6242.	6419.	6436.	6593.	6574.
1966	6731.	6646.	7040.	7103.	7239.	7296.	7451.	7769.	7749.	7975.	8324.	8398.
1967	8410.	8306.	8891.	8866.	8794.	8544.	8649.	8634.	8817.	8996.	8994.	9361.
1968	9025.	9535.	9642.	9935.	9875.	10059.	10170.	10053.	10058.	9896.	10170.	10091.
1969	10437.	10401.	10553.	10542.	11062.	10565.	10948.	11212.	11593.	11943.	11668.	11835.
1970	11819.	12011.	11917.	12203.	12450.	12638.	13269.	13063.	13001.	12985.	12998.	13074.
1971	13380.	13691.	13856.	14001.	14139.	14336.	13839.	13513.	13950.	14391.	14439.	14698.
1972	14909.	15034.	15303.	15250.	15455.	16336.	16346.	16466.	16434.	16922.	17275.	17473.
1973	17626.	18287.	18449.	18797.	19018.	18900.	19277.	19153.	19720.	19423.	19755.	19861.
1974	19766.	19152.	19423.	19421.	19802.	19867.	19603.	20003.	20676.	20276.	19298.	20037.

TABLE 1E.--OXYGEN

FINAL SEASONALLY ADJUSTED SERIES

(MILLION CUBIC FEET)

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1970	26799.	27562.	27116.	27376.	27152.	27527.	27720.	27625.	28535.	27871.	27226.	27233.
1971	28242.	28878.	28474.	27853.	28104.	27261.	26732.	22714.	24701.	24891.	25239.	25839.
1972	26505.	26238.	27247.	28313.	28988.	29323.	29224.	30617.	30486.	31143.	31370.	31719.
1973	24926.	31009.	31049.	30760.	31121.	31652.	32953.	33021.	33220.	33297.	33270.	32447.
1974	32427.	31999.	31952.	32139.	31898.	31881.	32490.	32653.	33511.	33260.	32785.	31456.

TABLE 2A.--ACETYLENE

ORIGINAL SERIES

(MILLION CUBIC FEET)

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1965	1017.	1280.	1444.	1434.	1429.	1410.	1394.	1368.	1149.	1409.	1389.	1532.
1966	1390.	1258.	1513.	1350.	1375.	1340.	1303.	1444.	1451.	1406.	1379.	1389.
1967	1437.	1269.	1200.	1253.	1195.	1047.	1008.	1138.	1122.	1207.	1205.	1248.
1968	1244.	1256.	1304.	1291.	1287.	1171.	1234.	1239.	1192.	1293.	1225.	1281.
1969	1408.	1284.	1385.	1294.	1320.	1265.	1268.	1274.	1339.	1378.	1246.	1337.
1970	1415.	1336.	1271.	1301.	1257.	1575.	1197.	1107.	1138.	1096.	1085.	1056.
1971	957.	1029.	831.	1088.	1052.	1025.	1020.	1036.	1019.	1086.	1118.	1088.
1972	1021.	946.	998.	915.	859.	995.	922.	952.	902.	975.	975.	987.
1973	889.	767.	696.	698.	685.	661.	646.	662.	651.	652.	669.	602.
1974	626.	631.	628.	638.	646.	615.	571.	594.	613.	667.	637.	604.

TABLE 2B.--CARBON DIOXIDE

ORIGINAL SERIES

(SHORT TONS)

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1965	77209.	73607.	83900.	85729.	97908.	101860.	106976.	105478.	97020.	92208.	85845.	83561.
1966	70847.	72610.	85210.	84363.	92173.	101227.	109440.	112749.	99008.	92689.	86853.	74700.
1967	80677.	78561.	74921.	88176.	95256.	106843.	103898.	108893.	98873.	93141.	79126.	77004.
1968	81374.	69417.	75555.	73145.	90217.	86793.	108887.	106973.	93293.	89405.	93917.	87194.
1969	87401.	84189.	92119.	91706.	97640.	104225.	116246.	114485.	104142.	98648.	88516.	87235.
1970	74425.	91917.	93334.	96514.	109361.	100427.	104344.	105406.	103336.	88421.	82175.	81794.
1971	40756.	90205.	102000.	111235.	110444.	119018.	125206.	126771.	118593.	114759.	110379.	109736.
1972	117038.	103331.	137928.	123839.	141657.	144600.	147204.	154000.	144563.	142334.	131463.	117694.
1973	116429.	117054.	121490.	111145.	132714.	135844.	143758.	148424.	135365.	145937.	134323.	124705.
1974	100330.	102604.	121440.	123006.	135677.	128817.	127274.	131142.	130517.	125709.	106347.	112569.

TABLE 2C.--HYDROGEN

ORIGINAL SERIES

(MILLION CUBIC FEET)

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1965	4584.	8824.	8753.	9806.	10109.	9740.	10846.	11108.	11051.	10951.	11201.	11234.
1966	11448.	9936.	12221.	11929.	11612.	10651.	11625.	11606.	11680.	11758.	11700.	11573.
1967	13268.	10807.	11848.	12264.	14733.	12619.	13889.	14142.	13575.	12541.	13359.	15494.
1968	17252.	15214.	14311.	15259.	17342.	16968.	16217.	17112.	17865.	18761.	18379.	17072.
1969	5546.	5173.	5766.	5775.	5562.	5514.	5086.	5619.	5161.	5552.	5090.	4957.
1970	4963.	4754.	5025.	5030.	5092.	5062.	4860.	5030.	4827.	5170.	4842.	4999.
1971	4421.	4221.	4701.	4638.	4698.	4633.	4660.	4689.	4382.	5170.	4681.	4781.
1972	4810.	4814.	4934.	4788.	5091.	4870.	4914.	4688.	4934.	5035.	4932.	5078.
1973	5423.	5051.	5614.	5258.	5615.	5159.	5599.	5395.	5337.	5405.	5468.	5631.
1974	5719.	5699.	5956.	5882.	6004.	5960.	6233.	5981.	5980.	6578.	6039.	5644.

TABLE 2D.--NITROGEN

ORIGINAL SERIES

(MILLION CUBIC FEET)

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1965	5347.	5133.	5842.	5718.	5814.	5799.	6010.	6373.	6342.	6513.	6699.	6633.
1966	4913.	6472.	7308.	7074.	7196.	6969.	7377.	7988.	7664.	8079.	8441.	8465.
1967	4637.	7797.	8305.	8375.	8829.	8186.	8597.	8833.	8790.	9122.	8994.	9408.
1968	9315.	9229.	10001.	9865.	9895.	9698.	10211.	10264.	9948.	10064.	10160.	10081.
1969	10666.	9830.	10901.	10468.	11150.	10228.	10970.	11447.	11546.	12134.	11505.	11846.
1970	12043.	11343.	12334.	11996.	12637.	12384.	13295.	13298.	12948.	13231.	12713.	12969.
1971	13594.	12957.	14469.	13736.	14407.	14134.	13894.	13729.	13741.	14650.	14192.	14537.
1972	15118.	14804.	15899.	14976.	15936.	15994.	16411.	16697.	16302.	17260.	16827.	17316.
1973	17982.	17367.	19205.	18404.	19512.	18691.	19354.	19344.	19425.	19950.	19243.	19682.
1974	20043.	18126.	20238.	19148.	20071.	19550.	19819.	20183.	20305.	20702.	18949.	19857.

TABLE 2E.--OXYGEN

ORIGINAL SERIES												(MILLION CUBIC FEET)
YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1970	27341.	26377.	28600.	28145.	28286.	27527.	27166.	26534.	26787.	28487.	26922.	27503.
1971	26522.	27588.	29977.	28636.	29662.	26744.	26408.	21603.	23733.	25237.	24809.	26252.
1972	27452.	25540.	26771.	28879.	30085.	29263.	29014.	29064.	29269.	31796.	30992.	32065.
1973	30253.	29286.	32945.	31627.	32203.	31273.	32328.	31667.	31959.	34092.	33035.	33329.
1974	32664.	30062.	33362.	32718.	33142.	31467.	31810.	31632.	32595.	34085.	32359.	31958.

TABLE 3A.--ACETYLENE

FINAL COMBINED FACTORS												(MILLION CUBIC FEET)
YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1965	105.395	94.244	102.711	101.295	98.283	94.947	94.516	99.495	99.891	102.145	101.405	105.152
1966	100.432	94.641	104.640	98.404	101.204	95.149	93.575	99.395	100.482	100.918	101.405	102.990
1967	107.636	95.731	103.022	97.604	101.103	96.215	92.915	100.779	97.713	103.515	101.405	101.258
1968	107.334	101.724	98.796	100.297	102.313	93.106	96.078	98.304	98.307	104.753	99.687	102.812
1969	107.585	98.208	97.014	99.992	100.498	95.623	98.130	96.924	99.391	104.239	99.756	102.611
1970	104.984	98.605	98.591	99.185	98.943	97.981	98.358	95.941	99.689	102.890	102.680	103.938
1971	102.637	98.505	97.787	94.060	97.502	99.286	96.809	98.792	100.093	102.243	105.332	103.428
1972	100.723	102.970	97.851	94.866	99.897	100.584	94.379	100.372	98.601	105.123	106.752	100.569
1973	102.611	97.713	98.111	96.170	100.881	98.009	96.681	99.879	97.898	105.726	108.102	99.845
1974	103.734	97.217	94.954	97.176	100.082	97.213	96.480	98.304	99.698	107.505	105.116	102.912

COMBINED FINAL SEASONAL AND TRADING-DAY FACTORS ONLY, ONE YEAR AHEAD

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1975	103.124	96.920	94.080	97.268	98.304	96.903	97.722	97.121	101.103	107.078	104.255	(NA)

TABLE 3B.--CARBON DIOXIDE

FINAL COMBINED FACTORS												(SHORT TONS)
YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1965	84.521	82.253	93.914	94.201	101.839	111.384	116.230	119.341	106.693	102.613	92.144	90.698
1966	87.589	82.550	91.977	93.774	103.389	109.990	119.128	121.035	107.358	99.578	93.442	87.074
1967	89.132	83.145	95.828	91.830	105.147	110.385	116.092	117.988	106.725	100.099	92.408	88.817
1968	90.479	85.510	94.759	94.331	106.704	106.417	118.606	116.624	106.943	98.307	92.368	87.537
1969	93.571	85.424	93.483	96.768	102.933	108.555	114.526	118.020	105.265	101.266	90.166	88.651
1970	90.423	86.812	95.911	96.903	105.433	106.457	117.374	113.438	106.546	97.614	93.550	86.538
1971	92.443	87.803	98.164	98.378	103.313	107.554	110.419	113.359	105.694	101.405	93.138	89.672
1972	89.846	90.830	94.830	95.942	106.058	107.559	108.425	111.263	106.424	102.591	94.406	87.911
1973	91.491	88.695	95.742	98.485	103.548	107.026	108.673	114.707	103.774	106.058	95.956	85.914
1974	89.505	88.695	97.880	96.816	107.114	104.459	110.004	109.828	106.541	104.636	95.982	87.238

COMBINED FINAL SEASONAL AND TRADING-DAY FACTORS ONLY, ONE YEAR AHEAD

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1975	92.750	88.695	95.548	97.877	102.637	107.447	107.405	112.180	105.066	109.064	93.886	(NA)

TABLE 3C.--HYDROGEN

FINAL COMBINED FACTORS												(MILLION CUBIC FEET)
YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1965	100.640	84.884	91.421	97.105	100.142	96.475	102.080	104.420	102.573	104.091	100.596	101.993
1966	104.381	84.983	90.709	96.500	104.627	95.728	101.896	105.037	103.692	104.978	100.801	101.485
1967	105.030	80.785	90.328	94.732	103.927	97.205	100.596	104.495	104.100	107.850	100.192	102.305
1968	104.129	91.914	90.818	95.445	101.893	97.612	101.102	104.160	103.503	108.591	101.200	103.318
1969	111.594	84.884	92.031	95.067	100.690	99.199	99.301	103.892	103.727	109.271	100.492	103.322
1970	94.495	90.577	95.363	94.339	100.896	100.394	99.202	102.588	101.807	108.436	100.601	101.598
1971	94.800	92.163	98.478	98.407	100.690	99.896	99.201	101.908	98.902	107.684	100.697	100.797
1972	90.401	97.249	100.099	97.215	102.716	98.602	100.397	99.700	98.200	107.346	97.811	100.399
1973	101.001	94.601	101.385	96.794	102.296	98.500	101.800	98.205	96.917	106.550	97.704	100.096
1974	100.499	95.235	102.694	94.788	102.392	97.612	102.111	97.215	97.598	104.995	97.600	101.204

COMBINED FINAL SEASONAL AND TRADING-DAY FACTORS ONLY, ONE YEAR AHEAD

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1975	101.498	95.532	102.787	99.493	102.180	98.398	101.199	97.405	98.374	104.486	96.818	(NA)

TABLE 3D.--NITROGEN

FINAL COMBINED FACTORS												(MILLION CUBIC FEET)
YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1965	102.697	93.749	104.523	98.403	99.301	96.279	98.401	102.098	98.803	101.199	101.605	100.898
1966	102.697	93.848	103.800	99.597	99.401	95.516	99.001	102.813	98.903	101.299	101.405	100.799
1967	102.697	93.848	103.393	98.902	100.399	95.815	99.401	102.300	99.697	101.399	99.998	100.499
1968	103.216	96.791	103.297	99.296	100.199	96.407	100.399	102.098	98.903	101.700	99.898	99.900
1969	102.195	94.145	103.297	99.294	100.799	96.811	100.200	102.098	99.597	101.596	98.602	100.097
1970	101.898	94.442	103.496	98.305	101.498	97.990	100.199	101.798	99.596	101.898	97.807	99.200
1971	101.598	94.641	104.423	98.106	101.898	98.591	100.400	101.598	98.504	101.798	98.292	98.402
1972	101.399	98.468	103.892	98.203	103.115	97.907	100.400	101.400	99.195	101.998	97.409	99.101
1973	102.008	94.641	104.096	97.907	102.600	98.898	100.400	100.498	98.503	102.713	97.409	99.101
1974	101.400	94.641	104.196	98.593	102.395	98.403	101.103	100.899	98.206	102.100	98.191	99.101

COMBINED FINAL SEASONAL AND TRADING-DAY FACTORS ONLY, ONE YEAR AHEAD

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1975	101.197	94.641	104.296	98.691	102.497	98.206	100.500	100.799	98.994	101.796	97.604	(NA)

TABLE 3E.--OXYGEN

FINAL COMBINED FACTORS												(MILLION CUBIC FEET)
YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1970	102.211	95.632	105.449	102.810	104.177	100.000	98.000	96.051	93.874	102.211	98.882	100.990
1971	100.993	95.532	105.277	102.812	105.545	98.105	98.787	95.109	96.083	101.391	98.298	101.600
1972	102.414	97.339	105.400	101.998	103.783	99.797	99.283	94.927	96.008	102.095	98.794	101.692
1973	101.094	94.442	105.936	102.817	103.475	98.802	98.105	95.900	96.204	102.389	99.294	102.717
1974	100.792	93.447	104.475	101.802	103.900	98.701	97.907	96.873	97.268	102.481	98.702	101.596

COMBINED FINAL SEASONAL AND TRADING-DAY FACTORS ONLY, ONE YEAR AHEAD

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1975	101.400	93.653	105.448	99.974	104.627	99.588	97.710	95.819	96.597	103.200	98.901	(NA)

TABLE 4.--AVERAGE PERCENTAGE CHANGES AND RELATED MEASURES

Item	Average percentage change			Ratio of irregular component to cyclical component (I/C)	Number of months for cyclical dominance	(I/C) for MCD span	Average duration of run			
	Seasonally adjusted series (CI)	Irregular component (I)	Cyclical component (C)				CI	I	C	MCD
Acetylene.....	4.50	4.14	1.36	3.05	4	.87	1.90	1.71	7.87	3.29
Carbon Dioxide.....	4.77	4.63	1.05	4.39	5	.92	1.55	1.51	6.56	3.17
Hydrogen, high and low purity	4.36	4.70	1.93	2.44	4	.87	1.55	1.51	10.73	4.60
Nitrogen, high and low purity	1.91	1.37	1.20	1.14	2	.55	2.19	1.51	10.73	6.50
Oxygen, high and low purity..	2.03	1.76	.95	1.85	3	.71	2.07	1.61	8.29	5.09

# CURRENT INDUSTRIAL REPORTS

## Industrial Gases

1974



Issued November 1975

SERIES: M28C(74)-14

### SUMMARY OF FINDINGS

Shipments of industrial gases by primary manufacturers in 1974 totaled 777 million, or about 23 percent more than the 1973 figure of \$631 million. The 1974 total is composed of \$99 million for acetylene; \$59 million for carbon dioxide; and \$618 million for the product grouping elemental gases and other industrial gases, n.e.c. Compared with 1973, the 1974 totals showed a 27-percent increase for acetylene, an increase of 34 percent for carbon dioxide, and an increase of 22 percent for other elemental gases.

### SCOPE OF SURVEY

Figures in this report exclude values for hydrocarbon gases, such as propane, butane and propylene, or halogenated hydrocarbons and cyclopropane, which are reported to the United States Tariff Commission, and for sulfur dioxide and chlorine, which are shown in the Current Industrial Reports, Series M28A(74)-14, Inorganic Chemicals and Gases.

### QUALIFICATIONS OF THE DATA

The shipments values for some of the gases, particularly oxygen, reported by companies vary widely not only because of the conditions of sales, including delivery by pipeline or cylinder, but also because plant operations differ. The manufacturing and selling activities of some companies are centralized at the primary production site, while other companies sell

or ship liquefied gases to other sites (filling stations or conversion units) where the products are changed in form, "packaged," and sold. The values reported for some sites thus include marketing activities and for other sites do not.

Figures showing the quantities shipped to other plants of the same company (interplant transfers) were not compiled separately and thus are unavailable. In evaluating these interplant transfers for inclusion in the totals, respondents were instructed to report values which would approximate the commercial selling value, f.o.b. plant, and not the cost of production or some other book price.

### HISTORIC NOTE

Beginning in 1971, respondents were requested to report production either by specific methods of shipment or consumption in the producing plants for selected elemental gases and acetylene. Data for hydrogen, nitrogen, and oxygen include lower purity and high purity gas. Prior to 1971, lower purity gas was collected separately. Statistics for crude argon are collected separately. Special reporting instructions are also provided for carbon dioxide producers so that the chemical produced and shipped is reported only once, either in solid or liquid (including gaseous) form. Statistics exclude such activities as the liquefaction of purchased nitrogen. The quantities reported as produced exclude any information for gases used as fuel in producing plant, vented, or dis-

Inquiries concerning these figures should be addressed to the U.S. Department of Commerce, Bureau of the Census, Industry Division, Washington, D.C. 20233.



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posed of as waste. Other limitations of the statistics are indicated in footnotes appearing at the end of table 1.

### RELATED TABLES

In addition to the annual production statistics shown in table 2, monthly statistics for specified gases are shown in table 8. These monthly statistics supersede those which were released earlier in the monthly Current Industrial Reports, Series M28C, Industrial Gases, United States Production. Monthly and annual statistics have been issued beginning with January 1941. Geographic totals for specific gases are shown in tables 3 through 8. The geographic distribution of industrial gas plants by State is shown in table 10.

All figures included in this report are collected in thousand cubic feet, 70 F, at 1 atmosphere pressure, unless otherwise specified.

### ACKNOWLEDGMENTS

This report was prepared in the Industry Division under the direction of Robert J. Nealon, Chief, Current Nondurables Branch. John Ambler, assisted by Marjorie Joiner, was directly responsible for the review of the data and preparation of the report. Milton Eisen, Chief of the Division, and James Werking, Assistant Chief for Current Programs, provided overall direction and coordination to this project.

Table 1.--VALUE OF SHIPMENTS OF SELECTED INDUSTRIAL GASES: 1974-1973

Product code	Product	1974	1973	
			M28C	ASM
28132--	Acetylene.....	99.8	78.9	73.9
28133--	Carbon dioxide.....	59.1	44.2	49.9
28134--	Elemental compressed, liquefied gases, n.e.c.....	618.4	508.2	556.9

N.e.c.: Not elsewhere classified.

ASM: Annual Survey of Manufactures "Value of Product Shipments," 1973.

Table 2.--ANNUAL PRODUCTION AND SHIPMENTS OF INDUSTRIAL GASES: 1970 TO 1974

Code	Product	Unit of measure	Year	Quantity produced for all purposes	Total shipments including transfers quantity	Total shipments including transfers value (\$1,000)
2813--	Industrial gases, total.....		1974			777,337
			1973	(X)	(X)	<sup>1</sup> 631,225
			1972	(X)	(X)	<sup>1</sup> 607,230
			1971	(X)	(X)	<sup>1</sup> 584,673
			1970	(X)	(X)	<sup>1</sup> 633,602
28132--	Acetylene <sup>2</sup> .....	Mil.cu.ft.	1974	7,808	4,799	99,844
			1973	<sup>1</sup> 8,269	5,063	76,864
			1972	11,456	7,208	93,876
			1971	12,349	7,718	<sup>1</sup> 102,001
			1970	14,834	8,926	98,852
	Produced for pipeline shipment excluding that shipped to be compressed.....	...do....	1974	3,216	3,216	45,375
			1973	3,483	3,483	34,256
	Produced for compression, including cylinder and pipeline.....	...do....	1974	1,604	1,583	54,469
			1973	<sup>1</sup> 1,595	<sup>1</sup> 1,580	<sup>1</sup> 44,608
	Produced for consumption in this plant.....	...do....	1974	2,988	(X)	(X)
			1973	<sup>1</sup> 3,191	(X)	(X)
28133--	Carbon dioxide, total.....	Short tons	1974	1,766,032	1,661,690	59,090
			1973	<sup>1</sup> 1,565,506	<sup>1</sup> 1,449,265	<sup>1</sup> 44,178
			1972	<sup>1</sup> 1,610,251	<sup>1</sup> 1,500,523	<sup>1</sup> 48,375
			1971	1,344,026	1,235,442	38,963
			1970	1,135,454	1,028,290	37,142
2813311	Liquid and gas.....	...do....	1974	<sup>3</sup> 1,401,655	1,288,425	37,092
			1973	<sup>3</sup> 1,193,537	<sup>3</sup> 1,077,300	26,424
			1972	<sup>3</sup> 1,259,935	1,149,995	29,552
			1971	<sup>3</sup> 1,027,327	920,575	21,373
			1970	<sup>3</sup> 814,810	710,743	19,467
2813331	Solid (dry ice).....	...do....	1974	364,377	373,265	21,998
			1973	<sup>3</sup> 371,969	<sup>3</sup> 371,965	<sup>1</sup> 18,764
			1972	350,316	350,528	18,823
			1971	316,699	314,867	17,590
			1970	320,644	317,547	17,675
28134--	Elemental gases and other industrial gases, n.e.c., total.....		1974			618,403
			1973	(X)	(X)	508,183
			1972	(X)	(X)	<sup>1</sup> 464,979
			1971	(X)	(X)	<sup>1</sup> 443,709
			1970	(X)	(X)	497,508
2813415	Argon, high purity, total.....	Mil.cu.ft.	1974	4,688	4,688	47,380
			1973	<sup>4</sup> 4,325	<sup>4</sup> 4,325	35,032
			1972	3,795	3,798	32,493
			1971	3,048	3,042	27,641
			1970	2,742	2,741	39,140
	Produced for cylinder and bulk delivery shipment.....	...do....	1974	4,688	4,688	47,380
	Produced for pipeline shipment.....	...do....	1973	<sup>4</sup> 4,325	<sup>4</sup> 4,325	<sup>1</sup> 35,032
	Helium <sup>4</sup> .....	...do....	1974	883	539	(NA)
			1973	3,205	497	(NA)
			1972	4,094	489	(NA)
			1971	4,580	447	(NA)
			1970	4,600	542	(NA)
2813420	Hydrogen, total.....	...do....	1974	<sup>5</sup> 75,017	22,811	64,410
			1973	<sup>5</sup> 65,169	<sup>1</sup> 19,138	<sup>1</sup> 38,566
			1972	<sup>5</sup> 58,890	17,949	30,312
			1971	<sup>5</sup> 55,681	17,470	29,596
			1970	<sup>5</sup> 59,854	20,940	35,380
	Produced for cylinder and bulk delivery shipment.....	...do....	1974	6,343	6,345	48,239
	Liquid produced for conversion to gas.....	...do....	1973	<sup>5</sup> 5,659	<sup>5</sup> 5,659	<sup>1</sup> 27,828
	Produced for pipeline shipment.....	...do....	1974	16,453	16,466	16,171
	Liquid produced for government use.....	...do....	1973	<sup>1</sup> 13,416	<sup>1</sup> 13,480	10,738
	Produced for consumption in this plant.....	...do....	1974	52,221	(X)	(X)
			1973	46,093	(X)	(X)
2813440	Nitrogen, total <sup>6</sup> .....	...do....	1974	243,612	219,467	176,529
			1973	<sup>7</sup> 227,160	<sup>7</sup> 203,267	<sup>7</sup> 150,746
			1972	<sup>7</sup> 193,540	<sup>7</sup> 176,833	<sup>7</sup> 130,358
			1971	<sup>7</sup> 168,040	<sup>7</sup> 153,758	<sup>7</sup> 118,866
			1970	151,191	134,925	<sup>8</sup> 123,032
	Gas:					
	Produced for cylinder and bulk delivery shipment.....	...do....	1974	549	448	2,213
			1973	<sup>5</sup> 514	<sup>5</sup> 506	<sup>1</sup> 3,272
	Produced for pipeline shipment.....	...do....	1974	144,086	144,220	47,285
			1973	<sup>1</sup> 132,395	131,366	38,656
	Produced for consumption in this plant.....	...do....	1974	20,875		
			1973	<sup>1</sup> 20,062	(X)	(X)

See footnotes at end of table.

Table 2.--ANNUAL PRODUCTION AND SHIPMENTS OF INDUSTRIAL GASES: 1970 TO 1974--Continued

Code	Product	Unit of measure	Year	Quantity produced for all purposes	Total shipments including transfers quantity	Total shipments including transfers value (\$1,000)
	Elemental gases and other industrial gases, n.e.c.--Continued					
	Nitrogen <sup>6</sup> --Continued					
	Liquid:					
	Produced for cylinder and bulk delivery shipment.....	Mil.cu.ft.	1974	70,204	69,930	122,212
			1973	<sup>r</sup> 66,431	<sup>r</sup> 66,431	103,687
	Produced for bulk shipment to pipelines or to other air separation plants.....	....do....	1974	4,865	4,867	4,818
			1973	<sup>r</sup> 4,965	<sup>r</sup> 4,964	5,131
	Produced for consumption in this plant.....	....do....	1974	3,032		
			1973	2,793	(X)	(X)
2813450	Oxygen, total <sup>6</sup> .....	....do....	1974	<sup>r</sup> 389,628	<sup>r</sup> 335,089	<sup>r</sup> 304,339
			1973	<sup>r</sup> 389,436	<sup>r</sup> 331,327	<sup>r</sup> 229,730
			1972	<sup>r</sup> 351,733	<sup>r</sup> 300,263	<sup>r</sup> 215,724
			1971	<sup>r</sup> 319,171	<sup>r</sup> 268,882	<sup>r</sup> 215,515
			1970	283,860	273,465	<sup>a</sup> 237,675
	Gas:					
	Produced for cylinder and bulk delivery shipment.....	....do....	1974	405	426	4,433
			1973	<sup>r</sup> 445	<sup>r</sup> 482	<sup>r</sup> 4,399
	Produced for pipeline shipments.....	....do....	1974	274,654	271,948	170,850
			1973	271,133	271,132	125,862
	Produced for consumption in this plant.....	....do....	1974	( <sup>a</sup> )	(X)	(X)
			1973	( <sup>b</sup> )	(X)	(X)
	Liquid:					
	Produced for cylinder and bulk delivery shipments.....	....do....	1974	52,109	52,234	115,837
			1973	<sup>r</sup> 49,909	<sup>r</sup> 48,731	<sup>r</sup> 85,308
	Produced for bulk shipment to pipeline or to other air separation plants.....	....do....	1974	10,481	10,481	13,219
			1973	<sup>r</sup> 10,982	<sup>r</sup> 10,982	<sup>r</sup> 14,161
	Produced for consumption in this plant.....	....do....	1974	<sup>a</sup> 51,979	(X)	(X)
			1973	<sup>r</sup> 57,966	(X)	(X)
2813471	Nitrous oxide.....	1,000 gals (STP)	1974	1,478,198	1,478,198	5,358
			1973	1,281,590	1,281,590	4,659
			1972	1,278,285	1,278,285	4,300
			1971	1,121,366	1,121,366	4,057
			1970	1,098,553	1,098,342	3,890
2813498	Other industrial gases, n.e.c., including crude argon, carbon dioxide produced and transferred for further processing, and crude and high purity helium produced in privately owned plants <sup>10</sup> .....	.....	1974			20,387
			1973	(X)	(X)	<sup>r</sup> 49,450
			1972	(X)	(X)	56,692
			1971	(X)	(X)	48,234
			1970	(X)	(X)	<sup>a</sup> 58,591

(NA) Not available. n.e.c. Not elsewhere classified. <sup>r</sup> Revised. (X) Not applicable.<sup>1</sup>Excludes value for helium produced in government owned plants.<sup>2</sup>Excludes information from railroad ships, shipyards, welding shops, and small establishments using portable generators.<sup>3</sup>Excludes production of liquid and gas carbon dioxide converted to and reported as dry ice and also amounts converted from pure carbon dioxide (liquid or solid) purchased or received from other plants. Also excludes quantities produced and consumed in plants manufacturing soda ash or urea, and quantities produced and transferred to other plants where it is further processed.<sup>4</sup>Source: U.S. Department of Interior, Bureau of Mines.<sup>5</sup>Excludes amounts vented, used as fuel, etc., and amounts produced and consumed in the manufacture of synthetic ammonia and methanol, but includes an unspecified amount produced for sale or interplant transfer to plants consuming this gas in the production of ammonia. Also excludes amounts produced by the ammonia dissociation process (cracking of ammonia). Also excludes amounts produced in petroleum refineries for captive use. However, of the total shown for lower purity hydrogen prior to 1969, 70 to 75 percent was accounted for by petroleum refiners with captive hydrogen production. Not all such petroleum refineries were canvassed in this survey.<sup>6</sup>Excludes amounts produced and consumed in the manufacture of synthetic ammonia or ammonia derivatives.<sup>7</sup>Data for 1973 and 1972 include figures for high and lower purity gas. Prior to 1971, data only included figures for high purity gas.<sup>8</sup>Data for lower purity nitrogen and lower purity oxygen combined with code 2813498 for 1969 and 1970.<sup>9</sup>Data for oxygen(gas), produced for consumption in this plant, combined with data for oxygen (liquid), produced for consumption in this plant, to avoid disclosing figures for individual companies.<sup>10</sup>Excludes hydrocarbon gases such as propane, butane, and propylene, or halogenated hydrocarbons and cyclopropane, which are reported to the U.S. Tariff Commission. Also excludes sulfur dioxide and chlorine, figures for which are shown in Current Industrial Reports Series M28A (73)-14, Inorganic Chemicals and Gases.

Table 3.--PRODUCTION AND SHIPMENTS OF ACETYLENE, BY GEOGRAPHIC AREA: 1974

Production	Production (mil. cu. ft.)	Total shipments including interplant transfers	
		Quantity (mil. cu. ft.)	Value (\$1,000)
UNITED STATES, TOTAL <sup>1</sup> .....	7,808	4,799	99,844
Northeast Region and North Central Region....	939	791	26,414
South Region.....	6,557	3,714	63,324
Mountain Division.....	111	97	3,132
Pacific Division.....	201	197	6,974

<sup>1</sup>See table 9 for the number of establishments reporting production by State.

Table 4.--PRODUCTION AND SHIPMENTS OF CARBON DIOXIDE, BY DIVISIONS: 1974

Division	Total liquid and solid			Liquid and gas			Solid (dry ice)		
	Production	Shipments		Production	Shipments		Production	Shipments	
		Quantity (short tons)	Value (\$1,000)		Quantity (short tons)	Value (\$1,000)		Quantity (short tons)	Value (\$1,000)
UNITED STATES, TOTAL <sup>1</sup> .....	1,766,032	1,661,688	59,090	1,401,655	1,288,425	37,092	364,377	373,263	21,998
New England and Middle Atlantic.....	136,210	143,372	6,841	70,381	70,307	1,956	65,829	73,065	4,885
East North Central.....	303,587	283,515	9,831	227,309	207,237	4,633	76,278	76,278	5,298
West North Central.....	196,224	189,980	6,174	155,473	149,229	3,697	40,751	40,751	2,477
South Atlantic and East South Central.....	502,712	472,101	20,490	449,714	418,128	17,146	52,998	53,973	3,341
West South Central.....	354,921	308,731	9,377	323,801	274,936	7,243	31,120	31,795	2,134
Mountain.....	45,808	45,808	1,118	19,680	19,680	321	26,128	26,128	797
Pacific.....	226,570	220,181	5,159	155,297	148,908	2,096	71,273	71,273	3,066

<sup>1</sup>See table 9 for the number of establishments reporting production by State.

Table 5.--SHIPMENTS OF ARGON (HIGH PURITY) BY GEOGRAPHIC AREA: 1974

Geographic area	Total shipments including interplant transfers	
	Quantity (mil. cu. ft.)	Value (\$1,000)
UNITED STATES, TOTAL <sup>1</sup> .....	4,688	47,380
Northeast Region.....	980	9,088
East North Central Division.....	1,722	15,004
Ohio.....	468	4,061
South Atlantic Division.....	644	8,221
East South Central Division.....	130	1,873
West South Central Division.....	519	5,378
West Region.....	693	6,918
California.....	580	5,509

<sup>1</sup>See table 9 for the number of establishments reporting production by State.

Table 6.--PRODUCTION AND SHIPMENTS OF HYDROGEN (TOTAL) BY GEOGRAPHIC AREA: 1974

Geographic area	Production (mil. cu. ft.)	Total shipments including interplant transfers	
		Quantity (mil. cu. ft.)	Value (\$1,000)
UNITED STATES, TOTAL <sup>1</sup> .....	75,017	22,811	64,410
Northeast Region.....	4,794	3,096	9,655
North Central Region.....	6,663	3,057	6,466
South Region and West Region.....	63,560	16,658	48,289
East South Central Division.....	5,212	1,683	2,346
West South Central Division.....	43,866	7,370	32,361

<sup>1</sup>See table 9 for the number of establishments reporting production by State.

Table 7.--PRODUCTION AND SHIPMENTS OF NITROGEN (TOTAL) BY GEOGRAPHIC AREA: 1974

Geographic area	Production (mil. cu. ft.)	Total shipments including interplant transfers	
		Quantity (mil. cu. ft.)	Value (\$1,000)
UNITED STATES, TOTAL <sup>1</sup> .....	243,612	219,467	176,529
New England Division.....	5,039	4,940	6,732
Middle Atlantic Division.....	31,185	29,466	34,495
New York.....	3,936	3,403	4,610
New Jersey.....	10,701	10,575	14,835
Pennsylvania.....	16,548	15,488	15,050
North Central Region.....	49,468	48,381	37,137
Ohio.....	11,307	10,947	7,239
Illinois.....	8,286	8,067	12,298
South Atlantic Division.....	37,076	29,631	20,535
West Virginia.....	17,235	9,762	5,408
East South Central Division.....	19,687	17,359	15,678
Tennessee.....	5,906	4,198	3,941
Alabama.....	10,729	10,730	10,408
West South Central Division.....	75,166	65,816	34,152
Texas.....	59,209	53,272	23,720
Mountain Division.....	2,543	2,551	3,491
Utah.....	384	384	331
Pacific Division.....	23,448	21,323	24,309
California.....	21,867	20,575	22,099

<sup>1</sup>See table 9 for the number of establishments reporting production by State.

Table 8.--PRODUCTION AND SHIPMENTS OF OXYGEN (TOTAL) BY GEOGRAPHIC AREAS: 1973

Geographic area	Production (mil. cu. ft.)	Total shipments including interplant transfers	
		Quantity (mil. cu. ft.)	Value (\$1,000)
UNITED STATES, TOTAL <sup>1</sup> .....	389,628	335,089	304,339
New England Division.....	1,512	1,489	2,927
Middle Atlantic Division.....	74,330	73,008	59,398
New York.....	15,479	15,452	11,639
New Jersey.....	2,705	2,700	5,476
Pennsylvania.....	56,146	54,856	42,283
North Central Region.....	145,063	126,427	123,498
Ohio.....	40,016	39,107	38,570
Michigan.....	21,596	12,321	15,206
South Atlantic Region.....	38,066	38,007	33,756
West Virginia.....	22,870	22,781	20,044
Florida.....	1,206	1,196	1,785
East South Central Division.....	29,201	29,147	20,948
Alabama.....	11,581	11,595	9,467
West South Central Division.....	76,278	44,052	31,983
Texas.....	53,356	34,710	21,915
Mountain Division.....	7,592	5,371	6,402
Utah.....	3,179	1,235	1,320
Pacific Division.....	17,587	17,588	25,427
California.....	16,401	16,402	20,464

<sup>1</sup>See table 9 for number of establishments reporting production by State.

Table 9. --PRIMARY PRODUCTION OF SPECIFIED INDUSTRIAL GASES, BY MONTHS: 1974 AND 1973

Code	Product	Unit of measure	Year	Total	January	February	March	April	May	June	July	August	September	October	November	December
2813200	Acetylene.....	ml.cu.ft.	1974 1973	7,808 8,268	656 879	664 767	659 696	669 698	677 685	647 661	602 646	624 662	639 651	694 652	669 669	608 602
	Produced for pipeline shipment, excluding that produced to be compressed	.....do.....	1974 1973	3,216 3,483	232 477	262 365	291 275	278 275	284 301	258 271	240 270	273 280	271 260	304 241	258 237	265 211
	Produced for compression, including cylinder and pipeline.....	.....do.....	1974 1973	1,604 1,595	144 146	133 128	140 138	142 127	138 131	124 121	120 117	126 132	128 126	151 151	131 145	125 133
	Produced for consumption in this plant.....	.....do.....	1974 1973	2,988 3,191	280 271	269 274	228 283	249 282	255 253	265 269	242 250	225 250	240 265	239 260	279 267	218 258
2813415	Argon, high purity, total.....	.....do.....	1974 1973	4,684 4,317	366 320	385 337	402 363	397 364	401 357	379 350	365 362	385 347	398 358	417 406	385 378	405 375
	Produced for cylinder and bulk delivery shipment.....	.....do.....	1974 1973	4,684 4,317	366 320	385 337	402 363	397 364	401 357	379 350	365 362	385 347	398 358	417 406	385 378	405 375
	Carbon dioxide, total.....	Short tons	1974 1973	1,766,032 1,562,506	136,815 116,429	126,823 117,958	145,792 121,499	146,981 111,145	158,923 132,714	182,232 135,844	156,694 142,739	158,225 148,424	157,933 135,385	155,278 144,338	137,217 134,323	133,099 124,705
2813311	Liquid and gas.....	.....do.....	1974 1973	1,401,655 1,193,537	110,095 89,210	102,910 94,531	119,850 95,825	118,137 84,885	126,948 101,963	118,662 101,344	118,360 103,646	120,929 109,081	124,750 100,006	120,570 108,684	111,726 106,044	108,708 98,318
2813331	Solid (dry ice).....	.....do.....	1974 1973	364,377 137,969	28,720 27,219	23,913 23,427	25,932 25,674	28,844 26,260	31,975 30,751	33,570 34,500	38,334 35,096	37,296 35,343	33,203 35,379	34,708 35,654	25,491 28,279	24,391 26,367
2813420	Hydrogen, total.....	ml.cu.ft.	1974 1973	75,017 65,169	8,094 5,423	6,078 5,051	6,259 5,391	6,219 5,258	6,363 5,615	6,330 5,139	6,587 5,599	6,083 5,395	6,146 5,605	6,744 5,574	6,236 5,466	5,878 5,631
	Produced for cylinder and bulk delivery shipment.....	.....do.....	1974 1973	6,343 15,659	437 424	411 391	479 523	543 373	563 502	517 383	542 477	509 416	508 472	691 597	615 551	528 550
	Produced for pipeline shipment.....	.....do.....	1974 1973	16,453 13,416	1,306 984	1,383 979	1,317 1,031	1,429 1,082	1,386 1,142	1,343 1,101	1,465 1,198	1,288 1,098	1,372 1,303	1,447 1,152	1,377 1,148	1,340 1,198
	Liquid produced for government use.....	.....do.....	1974 1973	52,221 146,093	4,351 4,015	4,284 3,681	4,463 3,836	4,247 3,803	4,414 3,971	4,470 3,675	4,580 3,924	4,286 3,881	4,266 3,830	4,606 3,825	4,244 3,769	4,010 3,883
2813440	Nitrogen, total.....	.....do.....	1974 1973	243,612 17,990	20,488 17,990	18,707 17,315	20,634 19,204	19,557 18,412	20,463 19,205	20,075 18,744	20,729 19,362	20,929 19,352	20,803 19,307	21,382 19,643	19,744 19,251	20,101 19,375
	Gas:															
	Produced for cylinder and bulk delivery shipment.....	.....do.....	1974 1973	549 1514	48 68	48 58	49 43	49 37	49 41	54 39	42 40	42 38	43 27	43 40	41 45	41 38
	Produced for pipeline shipment.....	.....do.....	1974 1973	144,086 132,395	12,432 11,246	11,196 10,045	12,157 11,042	11,674 10,632	12,176 11,211	11,897 10,946	12,280 11,319	11,978 11,201	12,293 11,106	12,782 11,166	11,455 11,294	11,766 11,197
	Produced for consumption in this plant.....	.....do.....	1974 1973	20,875 20,062	1,779 1,594	1,714 1,584	1,786 1,686	1,633 1,644	1,610 1,721	1,669 1,563	1,701 1,605	1,891 1,679	1,748 1,743	1,786 1,809	1,773 1,699	1,805 1,735

Table 9.--PRIMARY PRODUCTION OF SPECIFIED INDUSTRIAL CASES, BY MONTHS: 1973 AND 1972--Continued

Code	Product	Unit of Measure	Year	Total	January	February	March	April	May	June	July	August	September	October	November	December
2813450	Nitrogen--Continued															
	Liquid:															
	Produced for cylinder and bulk delivery.....	mil.cu.ft.	1974	70,204	5,625	5,196	6,046	5,622	5,976	5,829	6,029	6,326	6,069	6,022	5,715	5,749
			1973	66,431	4,534	4,992	5,702	5,465	5,599	5,541	5,786	5,786	5,738	5,948	5,561	5,779
	Produced for bulk shipment to pipelines or to other air separation plants.....	.....do.....	1974	4,865	323	301	300	342	401	358	410	449	414	560	523	484
			1973	4,965	342	438	521	437	415	434	373	425	415	408	375	382
	Produced for consumption in this plant.....	.....do.....	1974	3,032	280	252	286	247	251	268	267	243	236	209	237	256
			1973	2,793	206	198	210	197	218	221	239	223	278	272	287	244
	Oxygen, total.....	.....do.....	1974	389,628	32,918	30,312	33,449	32,503	33,026	31,624	32,048	32,167	32,759	34,148	32,611	32,063
			1973	389,436	31,139	29,201	32,490	30,574	33,599	32,840	32,767	32,884	33,069	33,336	34,140	33,597
	Gas:															
	Produced for cylinder and bulk delivery															
	Shipment.....	.....do.....	1974	405	29	29	29	29	30	38	37	38	37	38	37	34
			1973	445	42	40	42	39	34	32	39	35	35	41	36	30
	Produced for pipeline shipment.....	.....do.....	1974	274,654	23,431	21,003	23,596	23,031	23,037	22,357	23,082	22,746	23,126	24,157	22,777	22,311
			1973	271,133	21,494	19,458	22,383	20,384	23,828	23,189	23,288	23,179	23,321	23,251	24,161	23,197
	Produced for consumption in this plant.....	.....do.....	1974	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
			1973	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
	Liquid:															
	Produced for cylinder and bulk delivery															
	Shipment.....	.....do.....	1974	52,109	4,337	4,041	4,413	4,181	4,475	4,132	3,912	4,353	4,312	4,623	4,550	4,770
			1973	48,909	3,757	3,716	3,968	4,061	4,305	3,824	3,962	3,740	4,175	4,379	4,435	4,587
	Produced for bulk shipment to pipelines or to other air separation plants.....	.....do.....	1974	10,481	795	882	963	870	990	846	764	826	943	915	953	734
			1973	10,982	802	901	1,006	943	1,041	908	827	967	807	884	901	995
	Produced for consumption in this plant.....	.....do.....	1974	151,979	4,326	4,357	4,448	4,392	4,504	4,245	4,253	4,200	4,341	4,415	4,284	4,214
			1973	157,966	5,043	5,086	5,091	5,147	4,991	4,887	4,651	4,763	4,731	4,781	4,607	4,788

r Revised

Data for oxygen (gas), produced for consumption in this plant, combined with data for oxygen (liquid), produced for consumption in this plant, to avoid disclosing figures for individual companies.

Table 10.--NUMBER OF ESTABLISHMENTS REPORTING THE PRODUCTION OF SELECTED INDUSTRIAL GASES, BY STATE: 1973

State	Acetylene 2813200	Carbon dioxide			Argon (refined) 2813415	Hydrogen 2813420	Nitrogen 2813440	Oxygen 2813450	Nitrous oxide 2813471
		Total <sup>1</sup> 28133	Liquid or gas <sup>2</sup> 2813311	Solid 2813331					
UNITED STATES, TOTAL.....	212	65	47	41	66	130	231	168	4
New England.....	5	1	-	1	2	4	11	5	-
Maine.....	-	-	-	-	-	1	-	1	-
New Hampshire.....	-	-	-	-	-	-	-	-	-
Vermont.....	-	-	-	-	-	-	1	-	-
Massachusetts.....	3	1	-	1	1	1	5	3	-
Rhode Island.....	1	-	-	-	-	-	1	-	-
Connecticut.....	1	-	-	-	1	2	4	1	-
Middle Atlantic.....	22	4	2	3	9	13	39	30	-
New York.....	5	1	1	-	1	3	9	4	-
New Jersey.....	5	2	-	2	2	7	8	5	-
Pennsylvania.....	12	1	1	1	6	3	22	21	-
East North Central.....	38	7	5	5	16	29	44	36	1
Ohio.....	14	2	2	2	6	8	15	16	1
Indiana.....	7	1	1	-	3	2	6	4	-
Illinois.....	6	3	1	3	3	13	15	10	-
Michigan.....	7	-	-	-	3	6	7	5	-
Wisconsin.....	4	1	1	-	1	-	1	1	-
West North Central.....	16	9	6	5	-	4	11	6	1
Minnesota.....	3	2	1	1	-	-	1	2	-
Iowa.....	3	3	3	2	-	-	1	-	-
Missouri.....	2	1	-	1	-	2	6	3	-
North Dakota.....	-	-	-	-	-	-	-	-	-
South Dakota.....	3	-	-	-	-	-	1	1	-
Nebraska.....	1	-	-	-	-	1	-	-	-
Kansas.....	4	3	2	1	-	1	2	-	1
South Atlantic.....	27	10	7	6	8	14	35	15	1
Delaware.....	-	1	1	-	1	4	2	2	-
Maryland.....	2	-	-	-	1	-	5	2	-
District of Columbia.....	-	-	-	-	-	-	-	-	-
Virginia.....	3	1	1	1	1	2	2	2	1
West Virginia.....	4	1	1	1	2	4	11	4	-
North Carolina.....	4	1	1	-	-	-	3	1	-
South Carolina.....	1	-	-	-	-	-	4	1	-
Georgia.....	4	2	1	1	1	2	3	1	-
Florida.....	9	4	2	3	2	2	5	2	-
East South Central.....	16	3	3	1	4	19	23	18	-
Kentucky.....	2	1	1	-	-	5	6	4	-
Tennessee.....	8	2	2	1	2	9	9	5	-
Alabama.....	4	-	-	-	2	4	7	8	-
Mississippi.....	2	-	-	-	-	1	1	1	-
West South Central.....	42	14	10	6	13	28	37	31	-
Arkansas.....	2	-	-	-	1	-	1	1	-
Louisiana.....	7	4	3	2	4	8	12	10	-
Oklahoma.....	5	-	-	-	-	1	1	-	-
Texas.....	28	10	7	4	8	19	23	20	-
Mountain.....	18	6	5	6	2	2	7	9	-
Montana.....	3	-	-	-	-	-	-	1	-
Idaho.....	2	-	-	-	-	-	-	-	-
Wyoming.....	1	-	-	-	-	-	-	-	-
Colorado.....	5	2	1	2	1	1	3	3	-
New Mexico.....	2	2	2	2	-	-	-	-	-
Arizona.....	1	-	-	-	-	-	2	2	-
Utah.....	3	2	2	2	1	1	2	3	-
Nevada.....	1	-	-	-	-	-	-	-	-
Pacific.....	25	11	9	8	12	17	24	18	1
Washington.....	4	2	2	2	1	2	2	2	-
Oregon.....	4	-	-	-	1	1	1	1	-
California.....	14	7	5	5	10	12	19	13	1
Alaska.....	1	-	-	-	-	-	-	-	-
Hawaii.....	2	2	2	1	-	2	2	2	-

-Represents zero.

<sup>1</sup>Unduplicated.<sup>2</sup>Excludes plants converting entire production to solid.

REFERENCE COPY

# CURRENT INDUSTRIAL REPORTS

## Industrial Gases

January 1975



Issued March 1975

SERIES: M28C(75)-1

The statistics in this publication are based on a survey of manufacturers and represent U.S. production and stocks of industrial gases. Estimates are included for companies whose reports were not received in time for tabulation. A more complete description of the survey appears on page 3.

TABLE 1.--SUMMARY OF PRODUCTION OF PRINCIPAL GASES: 1972 TO 1974

Month and year	Acetylene (2813200)  (Mil. cu. ft.)	Carbon dioxide, liquid and gas (281331)  (Short tons)	Carbon dioxide, solid (2813331)  (Short tons)	Hydrogen, high and low purity (100%)  (Mil. cu. ft.)	Nitrogen, high and low purity (100%)  (Mil. cu. ft.)	Oxygen, high and low purity (100%)  (Mil. cu. ft.)
1975						
January.....	486	77,939	21,279	5,321	19,875	32,044
1974						
December.....	604	90,767	21,802	5,644	19,857	31,958
November.....	637	86,509	19,838	6,059	18,949	32,359
October.....	667	95,555	30,154	6,578	20,702	34,085
September.....	613	101,868	28,649	5,980	20,305	32,595
August.....	594	98,400	32,742	5,981	20,183	31,632
July.....	571	94,503	32,771	6,233	19,819	31,810
June.....	615	99,803	29,014	5,960	19,550	31,467
May.....	646	107,657	27,420	6,004	20,071	33,142
April.....	638	98,961	24,445	5,882	19,148	32,718
March.....	628	99,420	22,020	5,956	20,238	33,382
February.....	631	83,124	19,484	5,699	18,126	30,062
January.....	626	87,021	22,309	5,719	20,043	32,684
1973						
December.....	665	91,608	22,035	5,801	19,733	33,329
November.....	663	91,929	23,990	5,647	19,215	33,035
October.....	653	102,479	28,636	5,909	19,953	34,092
September.....	622	84,572	31,151	5,482	19,203	31,959
August.....	650	100,845	35,132	5,654	19,484	31,667
July.....	627	99,474	33,902	5,329	19,221	32,328
June.....	633	89,366	30,271	5,627	18,601	31,273
May.....	659	87,283	25,186	5,010	19,326	32,203
April.....	661	79,999	22,219	4,680	18,035	32,627
March.....	717	86,164	21,379	4,958	18,544	32,945
February.....	855	78,450	19,116	4,235	16,969	29,286
January.....	965	80,592	21,304	4,674	17,273	30,253

Inquiries concerning these figures should be addressed to the U.S. Department of Commerce, Bureau of the Census, Industry Division, Washington, D.C. 20233.

SOCIAL AND ECONOMIC STATISTICS ADMINISTRATION LIBRARY



U.S. DEPARTMENT OF COMMERCE | Social and Economic Statistics Administration | BUREAU OF THE CENSUS

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TABLE 2.--PRIMARY PRODUCTION OF SPECIFIED INDUSTRIAL GASES

PRODUCT CODE	CHEMICAL AND BASIS	UNIT OF MEASURE	JANUARY 1975 QUANTITY PRODUCED	DECEMBER 1974 QUANTITY PRODUCED	JANUARY 1974 QUANTITY PRODUCED
2813200	ACETYLENE (1) . . . . .	MIL.CU.FT	486	604	626
	PRODUCED FOR PIPELINE SHIPMENT (EXCLUDING THAT SHIPPED TO BE COMPRESSED) . . . . .	DO	191	254	224
	PRODUCED FOR COMPRESSION, INCLUDING CYLINDER AND PIPELINE . . . . .	DO	138	125	402
	PRODUCED FOR CONSUMPTION IN THIS PLANT. . . . .	DO	157	225	
2813415	ARGON, HIGH PURITY . . . . .	DO	361	404	363
	PRODUCED FOR CYLINDER AND BULK DELIVERY SHIPMENT . . . . .	DO	361	404	363
	PRODUCED FOR PIPELINE SHIPMENT. . . . .	DO			-
	PRODUCED FOR CONSUMPTION IN THIS PLANT. . . . .	DO			-
2813311	CARBON DIOXIDE: LIQUID AND GAS (2) . . . . .	S.TONS	77,939	90,767	87,021
2813331	SOLID (DRY ICE) . . . . .	DO	21,279	21,802	22,309
2813420	HYDROGEN, TOTAL (3) . . . . .	MIL.CU.FT	5,321	5,641	5,719
	PRODUCED FOR CYLINDER AND BULK DELIVERY SHIPMENT . . . . .	DO	589	546	517
	LIQUID PRODUCED FOR CONVERSION TO GAS . . . . .	DO			
	PRODUCED FOR PIPELINE SHIPMENT. . . . .	DO			
	LIQUID PRODUCED FOR GOVERNMENT USE. . . . .	DO			
	PRODUCED FOR CONSUMPTION IN THIS PLANT. . . . .	DO	3,655	3,921	4,232
2813440	NITROGEN, TOTAL (4) . . . . .	DO	19,875	19,857	20,043
	GAS: PRODUCED FOR CYLINDER AND BULK DELIVERY SHIPMENT. . . . .	DO	12,040	11,740	12,079
	PRODUCED FOR PIPELINE SHIPMENT . . . . .	DO			
	PRODUCED FOR CONSUMPTION IN THIS PLANT . . . . .	DO			
			1,703	1,620	1,590
	LIQUID: PRODUCED FOR CYLINDER AND BULK DELIVERY SHIPMENT. . . . .	DO	5,152	5,596	5,597
	PRODUCED FOR BULK SHIPMENT TO PIPELINES OR TO OTHER AIR SEPARATION PLANTS. . . . .	DO	791	632	777
	PRODUCED FOR CONSUMPTION IN THIS PLANT . . . . .	DO	189	269	
2813450	OXYGEN, TOTAL. . . . .	DO	32,044	31,958	32,684
	GAS: PRODUCED FOR CYLINDER AND BULK DELIVERY SHIPMENT. . . . .	DO	152	153	185
	PRODUCED FOR PIPELINE SHIPMENT . . . . .	DO	23,638	23,049	24,125
	PRODUCED FOR CONSUMPTION IN THIS PLANT . . . . .	DO	( <sup>5</sup> )	( <sup>5</sup> )	( <sup>5</sup> )
	LIQUID: PRODUCED FOR CYLINDER AND BULK DELIVERY SHIPMENT. . . . .	DO	3,900	4,691	4,249
	PRODUCED FOR BULK SHIPMENT TO PIPELINES OR TO OTHER AIR SEPARATION PLANTS. . . . .	DO	861	864	816
	PRODUCED FOR CONSUMPTION IN THIS PLANT . . . . .	DO	53,493	53,201	53,309

- Represents zero.

<sup>1</sup>Excludes quantities of acetylene produced and consumed by railroad shops, shipyards, and small establishments using portable generators.

<sup>2</sup>Excludes production of liquid and gas CO<sub>2</sub> converted to and reported as dry ice and also amounts converted from pure CO<sub>2</sub> (liquid or solid) purchased or received from other plants. Also excludes quantities produced and consumed in plants manufacturing soda ash or urea.

<sup>3</sup>Excludes quantities produced and consumed in the manufacture of methanol and ammonia, but includes an unspecified amount of hydrogen produced for sale or interplant transfer to plants consuming this gas in the production of ammonia. Also excludes amounts of hydrogen produced in petroleum refineries for captive use. However, of the total shown for lower purity hydrogen prior to 1969, 70 to 75 percent was accounted for by petroleum refiners with captive hydrogen production. Not all such petroleum refineries were canvassed in this survey.

<sup>4</sup>Excludes amounts produced and used in the manufacture of ammonia and ammonia derivatives.

<sup>5</sup>Data for oxygen (gas), produced for consumption in this plant, combined with data for oxygen (liquid), produced for consumption in this plant to avoid disclosing figures for individual companies.

## DESCRIPTION OF SURVEY

The statistics in this publication were collected on Census monthly Form M28A.2, "Industrial Gases - Production," and represent complete coverage of the approximately 670 producers of elemental gases, carbon dioxide, and acetylene.

The current month's figures may include estimates for respondents whose reports were not received in time for tabulation. Such missing figures are imputed from the month-to-month movements shown by reporting firms and are generally limited to a maximum of 25 percent to any one item. Individual items with higher imputation rates are footnoted.

The imputation rate is not an explicit indicator of the potential error in published figures due to non-response, because the actual monthly movements for nonrespondents may or may not closely agree with the imputed movements. The probable range of difference between the actual and imputed figures is unknown. The degree of uncertainty regarding the accuracy of the data, however, increases as the percentage of imputation increases. Figures with high imputation rates, therefore, should be used with caution.

Statistics for previous months may be revised, due to receipt of corrected data from respondents, including late reports for which estimates were made, corrections. Figures which were revised significantly are indicated by footnotes.

The data are not adjusted for seasonal variation or number of working days.

## RELATED REPORTS

Monthly Current Industrial Report, Inorganic Chemicals, Series M28A, includes production and stock data for specified inorganic chemicals. Monthly CIR

report, Inorganic Fertilizer Materials and Related Products, Series M28B, includes production and stock data for ammonia and ammonia compounds, phosphatic fertilizers, and sulfuric acid.

An annual Current Industrial Report covering production and shipments of industrial gases is published in this series. The annual report includes more historical data and product detail than are shown in the monthly reports, and also includes detail by States for a number of industrial gases. The report is numbered M28A, Supplement.

## REPORTING PERIOD ADJUSTMENT

Beginning January 1975 the data were adjusted for number of working days in the reporting period to compensate for differences in individual company reporting patterns (i.e., calendar month, 4-week, 5-week periods). It has been determined that the calendar month accounting system prevails in the industry. Hence, adjustments have been made to those reporting on other than a calendar month basis.

## EXPLANATION OF TERMS

**Production**—Data shown for production represent total quantity of each chemical produced, including quantity consumed in plants, and for sale or transfer to other plants or warehouses of the same company. The statistics presented in the tables provide an up-to-date measure of activity in the inorganic field, but do not necessarily indicate amounts entering the market. In some cases, figures are included for material produced "in process" as an intermediate to the end products.

**Stocks**—Data shown for stocks represent quantities on hand, at the end of the month, at producing locations only, unless footnoted to indicate that the stock figure represents total stocks of producing companies including amounts held at locations other than producing plants.

REFERENCE COPY

## CURRENT INDUSTRIAL REPORTS

## Industrial Gases

February 1975



Issued April 1975

SERIES: M28C(75)-2

The statistics in this publication are based on a survey of manufacturers and represent U.S. production and stocks of industrial gases. Estimates are included for companies whose reports were not received in time for tabulation. A more complete description of the survey appears on page 3.

TABLE 1.—SUMMARY OF PRODUCTION OF PRINCIPAL GASES: 1972 TO 1974

Month and year	Acetylene (2813200)  (Mil. cu. ft.)	Carbon dioxide, liquid and gas (281331)  (Short tons)	Carbon dioxide, solid (2813331)  (Short tons)	Hydrogen, high and low purity (100%)  (Mil. cu. ft.)	Nitrogen, high and low purity (100%)  (Mil. cu. ft.)	Oxygen, high and low purity (100%)  (Mil. cu. ft.)
1975						
February.....	475	70,993	18,251	4,570	18,311	30,968
January.....	483	77,932	21,279	4,981	19,785	32,095
1974						
December.....	604	90,767	21,802	5,644	19,857	31,958
November.....	637	86,509	19,838	6,059	18,949	32,359
October.....	667	95,555	30,154	6,578	20,702	34,085
September.....	613	101,868	28,649	5,980	20,305	32,595
August.....	594	98,400	32,742	5,981	20,183	31,632
July.....	571	94,503	32,771	6,233	19,819	31,810
June.....	615	99,803	29,014	5,960	19,550	31,467
May.....	646	107,657	27,420	6,004	20,071	33,142
April.....	638	98,961	24,445	5,882	19,148	32,718
March.....	628	99,420	22,020	5,956	20,238	33,362
February.....	631	83,124	19,484	5,699	18,126	30,062
January.....	626	87,021	22,309	5,719	20,043	32,684
1973						
December.....	665	91,608	22,035	5,801	19,733	33,329
November.....	663	91,929	23,990	5,647	19,215	33,035
October.....	653	102,479	28,636	5,909	19,953	34,092
September.....	622	84,572	31,151	5,482	19,203	31,959
August.....	650	100,845	35,132	5,654	19,484	31,667
July.....	627	99,474	33,902	5,329	19,221	32,328
June.....	633	89,366	30,271	5,627	18,601	31,273
May.....	659	87,283	25,186	5,010	19,326	32,203
April.....	661	79,999	22,219	4,680	18,035	32,627
March.....	717	86,164	21,379	4,958	18,544	32,945
February.....	855	78,450	19,116	4,235	16,969	29,286
January.....	965	80,592	21,304	4,674	17,273	30,253

Note: Beginning in January of 1975, the data are adjusted for report period variation. Comparable data are not available for previous years; however, the effect of this adjustment is considered to be negligible at the total level. See "Reporting Period Adjustment" in the text.

Inquiries concerning these figures should be addressed to the U.S. Department of Commerce, Bureau of the Census, Industry Division, Washington, D.C. 20233.

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TABLE 2.--PRIMARY PRODUCTION OF SPECIFIED INDUSTRIAL GASES

PRODUCT CODE	CHEMICAL AND BASIS	UNIT OF MEASURE	FEBRUARY 1975 QUANTITY PRODUCED	JANUARY 1975 QUANTITY PRODUCED	FEBRUARY 1974 QUANTITY PRODUCED
2813200	ACETYLENE (1) . . . . .	MIL.CU.FT	475	483	631
	PRODUCED FOR PIPELINE SHIPMENT (EXCLUDING THAT SHIPPED TO BE COMPRESSED) . . . . .	DO	189	189	253
	PRODUCED FOR COMPRESSION, INCLUDING CYLINDER AND PIPELINE . . . . .	DO	126	138	378
	PRODUCED FOR CONSUMPTION IN THIS PLANT . . . . .	DO	160	156	
2813415	ARGON, HIGH PURITY . . . . .	DO	345	363	382
	PRODUCED FOR CYLINDER AND BULK DELIVERY SHIPMENT . . . . .	DO	345	363	382
	PRODUCED FOR PIPELINE SHIPMENT . . . . .	DO			-
	PRODUCED FOR CONSUMPTION IN THIS PLANT . . . . .	DO			-
2813311	CARBON DIOXIDE: LIQUID AND GAS (2) . . . . .	S.TONS	70,993	77,932	83,124
2813331	SOLID (DRY ICE) . . . . .	DO	18,251	21,279	19,484
2813420	HYDROGEN, TOTAL (3) . . . . .	MIL.CU.FT.	4,570	4,981	5,699
	PRODUCED FOR CYLINDER AND BULK DELIVERY SHIPMENT . . . . .	DO	476	586	490
	LIQUID PRODUCED FOR CONVERSION TO GAS . . . . .	DO			
	PRODUCED FOR PIPELINE SHIPMENT . . . . .	DO	995	1,080	1,044
	LIQUID PRODUCED FOR GOVERNMENT USE . . . . .	DO			
	PRODUCED FOR CONSUMPTION IN THIS PLANT . . . . .	DO	3,099	3,315	4,165
2813440	NITROGEN, TOTAL (4) . . . . .	DO	18,311	19,785	18,126
	GAS: PRODUCED FOR CYLINDER AND BULK DELIVERY SHIPMENT . . . . .	DO	10,980	11,801	10,731
	PRODUCED FOR PIPELINE SHIPMENT . . . . .	DO			
	PRODUCED FOR CONSUMPTION IN THIS PLANT . . . . .	DO	1,540	1,698	1,514
	LIQUID: PRODUCED FOR CYLINDER AND BULK DELIVERY SHIPMENT . . . . .	DO	4,864	5,302	5,162
	PRODUCED FOR BULK SHIPMENT TO PIPELINES OR TO OTHER AIR SEPARATION PLANTS . . . . .	DO	728	795	719
	PRODUCED FOR CONSUMPTION IN THIS PLANT . . . . .	DO	199	189	
2813450	OXYGEN, TOTAL . . . . .	DO	30,968	32,095	30,062
	GAS: PRODUCED FOR CYLINDER AND BULK DELIVERY SHIPMENT . . . . .	DO	30	r 31	177
	PRODUCED FOR PIPELINE SHIPMENT . . . . .	DO	23,125	23,788	21,722
	PRODUCED FOR CONSUMPTION IN THIS PLANT . . . . .	DO	(5)	(5)	(5)
	LIQUID: PRODUCED FOR CYLINDER AND BULK DELIVERY SHIPMENT . . . . .	DO	4,081	3,936	3,942
	PRODUCED FOR BULK SHIPMENT TO PIPELINES OR TO OTHER AIR SEPARATION PLANTS . . . . .	DO	689	861	890
	PRODUCED FOR CONSUMPTION IN THIS PLANT . . . . .	DO	53,043	53,479	3,331

- Represents zero.

<sup>1</sup>Excludes quantities of acetylene produced and consumed by railroad shops, shipyards, and small establishments using portable generators.<sup>2</sup>Excludes production of liquid and gas CO<sub>2</sub> converted to and reported as dry ice and also amounts converted from pure CO<sub>2</sub> (liquid or solid) purchased or received from other plants. Also excludes quantities produced and consumed in plants manufacturing soda ash or urea.<sup>3</sup>Excludes quantities produced and consumed in the manufacture of methanol and ammonia, but includes an unspecified amount of hydrogen produced for sale or interplant transfer to plants consuming this gas in the production of ammonia. Also excludes amounts of hydrogen produced in petroleum refineries for captive use. However, of the total shown for lower purity hydrogen prior to 1969, 70 to 75 percent was accounted for by petroleum refiners with captive hydrogen production. Not all such petroleum refineries were canvassed in this survey.<sup>4</sup>Excludes amounts produced and used in the manufacture of ammonia and ammonia derivatives.<sup>5</sup>Data for oxygen (gas), produced for consumption in this plant, combined with data for oxygen (liquid) for consumption in this plant to avoid disclosing figures for individual companies.

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## EXPLANATION OF TERMS

**Production**—Data shown for production represent total quantity of each chemical produced, including quantity consumed in plants, and for sale or transfer to other plants or warehouses of the same company. The statistics presented in the tables provide an up-to-date measure of activity in the inorganic field, but do not necessarily indicate amounts entering the market. In some cases, figures are included for material produced "in process" as an intermediate to the end products.

**Stocks**—Data shown for stocks represent quantities on hand, at the end of the month, at producing locations only, unless footnoted to indicate that the stock figure represents total stocks of producing companies including amounts held at locations other than producing plants.

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# CURRENT INDUSTRIAL REPORTS

## Industrial Gases

March 1975



Issued May 1975

SERIES: M28(75)-3  
128C

The statistics in this publication are based on a survey of manufacturers and represent U.S. production and stocks of industrial gases. Estimates are included for companies whose reports were not received in time for tabulation. A more complete description of the survey and the seasonal adjustment program appears on page 4.

TABLE 1A.--SEASONALLY ADJUSTED SUMMARY OF PRODUCTION OF PRINCIPAL GASES: 1973 TO 1975

Month and year	Acetylene (2813200)  (Mil. cu. ft.)	Carbon dioxide (2813311) and (2813331)  (Short tons)	Hydrogen, high and low purity (100%)  (Mil. cu. ft.)	Nitrogen, high and low purity (100%)  (Mil. cu. ft.)	Oxygen, high and low purity (100%)  (Mil. cu. ft.)
1975					
March.....	647	102,226	4,802	18,782	30,776
February.....	739	107,556	4,623	19,317	32,849
January.....	468	106,966	4,956	19,551	31,652
1974					
December.....	587	129,037	5,577	20,037	31,456
November.....	606	110,799	6,208	19,298	32,785
October.....	620	120,139	6,625	20,276	33,260
September.....	615	122,504	6,127	20,676	33,511
August.....	604	119,407	6,152	20,003	32,653
July.....	592	115,699	6,104	19,603	32,490
June.....	633	123,318	6,106	19,867	31,881
May.....	645	128,105	5,864	19,602	31,898
April.....	657	127,465	5,894	19,421	32,139
March.....	661	124,070	5,800	19,423	31,952
February.....	649	115,687	5,984	19,152	31,999
January.....	603	122,150	5,691	19,766	32,427
1973					
December.....	603	145,151	5,625	19,861	32,447
November.....	619	139,984	5,596	19,755	33,270
October.....	617	137,602	5,448	19,423	33,297
September.....	665	130,461	5,507	19,720	33,220
August.....	663	129,394	5,494	19,153	33,021
July.....	668	132,285	5,500	19,277	32,953
June.....	674	126,926	5,238	18,900	31,652
May.....	679	128,166	5,489	19,018	31,121
April.....	726	112,855	5,322	18,797	30,760
March.....	724	128,903	5,637	18,449	31,099
February.....	785	132,994	5,337	18,287	31,009
January.....	866	126,566	5,369	17,628	29,926

Inquiries concerning these figures should be addressed to the U.S. Department of Commerce, Bureau of the Census, Industry Division, Washington, D.C. 20233.

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U.S. DEPARTMENT OF COMMERCE | Social and Economic Statistics Administration | BUREAU OF THE CENSUS

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TABLE 1B.--SUMMARY OF PRODUCTION OF PRINCIPAL GASES: 1972 TO 1974

Month and year	Acetylene (2813200)  (Mil. cu. ft.)	Carbon dioxide, liquid abd gas (2813311)  (Short tons)	Carbon dioxide, solid (2813331)  (Short tons)	Hydrogen, high and low purity (100%)  (Mil. cu. ft.)	Nitrogen, high and low purity (100%)  (Mil. cu. ft.)	Oxygen, high and low purity (100%)  (Mil. cu. ft.)
1975						
March.....	609	77,917	19,758	4,936	19,589	32,576
February.....	<sup>r</sup> 716	77,998	17,399	4,416	18,282	30,763
January.....	483	77,932	21,279	4,981	19,785	32,095
1974						
December.....	604	90,767	21,802	5,644	19,857	31,958
November.....	637	86,509	19,838	6,059	18,949	32,359
October.....	667	95,555	30,154	6,578	20,702	34,085
September.....	613	101,868	28,649	5,980	20,305	32,595
August.....	594	98,400	32,742	5,981	20,183	31,632
July.....	571	94,503	32,771	6,233	19,819	31,810
June.....	615	99,803	29,014	5,960	19,550	31,467
May.....	646	107,657	27,420	6,004	20,071	33,142
April.....	638	98,961	24,445	5,882	19,148	32,718
March.....	628	99,420	22,020	5,956	20,238	33,382
February.....	631	83,124	19,484	5,699	18,126	30,062
January.....	626	87,021	22,309	5,719	20,043	32,684
1973						
December.....	665	91,608	22,035	5,801	19,733	33,329
November.....	663	91,929	23,990	5,647	19,215	33,035
October.....	653	102,479	28,636	5,909	19,953	34,092
September.....	622	84,572	31,151	5,482	19,203	31,959
August.....	650	100,845	35,132	5,654	19,484	31,667
July.....	627	99,474	33,902	5,329	19,221	32,328
June.....	633	89,366	30,271	5,627	18,601	31,273
May.....	659	87,283	25,186	5,010	19,326	32,203
April.....	661	79,999	22,219	4,680	18,035	32,627
March.....	717	86,164	21,379	4,958	18,544	32,945
February.....	855	78,450	19,116	4,235	16,969	29,286

Note: Beginning in January of 1975, the data are adjusted for report period variation. Comparable data are not available for previous years; however, the effect of this adjustment is considered to be negligible at the total level. See "Reporting Period Adjustment" in the text.

<sup>r</sup>Revised by 5 percent or more from previously published figures.

TABLE 2.--PRIMARY PRODUCTION OF SPECIFIED INDUSTRIAL GASES

PRODUCT CODE	CHEMICAL AND BASIS	UNIT OF MEASURE	MARCH 1975 QUANTITY PRODUCED	FEBRUARY 1975 QUANTITY PRODUCED	MARCH 1974 QUANTITY PRODUCED
2813200	ACETYLENE (1) . . . . .	MIL.CU.FT	609	<sup>r</sup> 716	628
	PRODUCED FOR PIPELINE SHIPMENT (EXCLUDING THAT SHIPPED TO BE COMPRESSED) . . . . .	DO	168	188	260
	PRODUCED FOR COMPRESSION, INCLUDING CYLINDER AND PIPELINE . . . . .	DO	441	528	368
	PRODUCED FOR CONSUMPTION IN THIS PLANT . . . . .	DO			
2813415	ARGON, HIGH PURITY . . . . .	DO	417	351	399
	PRODUCED FOR CYLINDER AND BULK DELIVERY SHIPMENT . . . . .	DO	417	351	399
	PRODUCED FOR PIPELINE SHIPMENT . . . . .	DO			-
	PRODUCED FOR CONSUMPTION IN THIS PLANT . . . . .	DO			-
2813311	CARBON DIOXIDE: LIQUID AND GAS (2) . . . . .	S.TONS	77,917	73,998	<sup>r</sup> 99,420
2813331	SOLID (DRY ICE) . . . . .	DO	19,758	17,399	22,020
2813420	HYDROGEN, TOTAL (3) . . . . .	MIL.CU.FT	4,936	4,416	5,956
	PRODUCED FOR CYLINDER AND BULK DELIVERY SHIPMENT . . . . .	DO	624	477	560
	LIQUID PRODUCED FOR CONVERSION TO GAS . . . . .	DO			
	PRODUCED FOR PIPELINE SHIPMENT . . . . .	DO	1,097	977	1,050
	LIQUID PRODUCED FOR GOVERNMENT USE . . . . .	DO			
	PRODUCED FOR CONSUMPTION IN THIS PLANT . . . . .	DO	3,215	2,962	4,346
2813440	NITROGEN, TOTAL (4) . . . . .	DO	19,589	18,282	20,238
	GAS: PRODUCED FOR CYLINDER AND BULK DELIVERY SHIPMENT . . . . .	DO	11,232	10,926	11,768
	PRODUCED FOR PIPELINE SHIPMENT . . . . .	DO			
	PRODUCED FOR CONSUMPTION IN THIS PLANT . . . . .	DO	1,800	1,538	<sup>r</sup> 1,721
	LIQUID: PRODUCED FOR CYLINDER AND BULK DELIVERY SHIPMENT . . . . .	DO	5,534	4,899	5,997
	PRODUCED FOR BULK SHIPMENT TO PIPELINES OR TO OTHER AIR SEPARATION PLANTS . . . . .	DO	759	715	752
	PRODUCED FOR CONSUMPTION IN THIS PLANT . . . . .	DO	264	204	
2813450	OXYGEN, TOTAL . . . . .	DO	32,576	30,733	33,382
	GAS: PRODUCED FOR CYLINDER AND BULK DELIVERY SHIPMENT . . . . .	DO	30	(NA)	<sup>r</sup> 299
	PRODUCED FOR PIPELINE SHIPMENT . . . . .	DO	23,743	22,823	24,036
	PRODUCED FOR CONSUMPTION IN THIS PLANT . . . . .	DO	( <sup>5</sup> )	( <sup>5</sup> )	( <sup>5</sup> )
	LIQUID: PRODUCED FOR CYLINDER AND BULK DELIVERY SHIPMENT . . . . .	DO	4,292	4,095	4,311
	PRODUCED FOR BULK SHIPMENT TO PIPELINES OR TO OTHER AIR SEPARATION PLANTS . . . . .	DO	839	689	973
	PRODUCED FOR CONSUMPTION IN THIS PLANT . . . . .	DO	3,672	3,126	<sup>r</sup> 3,763

- REPRESENT ZERO.

(NA) NOT AVAILABLE

<sup>r</sup>REVISED BY 5 PERCENT OR MORE FROM PREVIOUSLY PUBLISHED FIGURES.

(1) EXCLUDES QUANTITIES OF ACETYLENE PRODUCED AND CONSUMED BY RAILROAD SHOPS, SHIPYARDS, AND SMALL ESTABLISHMENTS USING PORTABLE GENERATORS.

(2) EXCLUDES PRODUCTION OF LIQUID AND GAS CO<sub>2</sub> CONVERTED TO AND REPORTED AS DRY ICE AND ALSO AMOUNTS CONVERTED FROM PURE CO<sub>2</sub> (LIQUID OR SOLID) PURCHASED OR RECEIVED FROM OTHER PLANTS. ALSO EXCLUDES QUANTITIES PRODUCED AND CONSUMED IN PLANTS MANUFACTURING SODA ASH OR UREA.

(3) EXCLUDES QUANTITIES PRODUCED AND CONSUMED IN THE MANUFACTURE OF METHANOL AND AMMONIA, BUT INCLUDES AN UNSPECIFIED AMOUNT OF HYDROGEN PRODUCED FOR SALE OR INTER-PLANT TRANSFER TO PLANTS CONSUMING THIS GAS IN THE PRODUCTION OF AMMONIA. ALSO EXCLUDES AMOUNTS OF HYDROGEN PRODUCED IN PETROLEUM REFINERIES FOR CAPTIVE USE, HOWEVER, OF THE TOTAL SHOWN FOR LOWER PURITY HYDROGEN PRIOR TO 1969, 70 TO 75 PERCENT WAS ACCOUNTED FOR BY PETROLEUM REFINERS WITH CAPTIVE HYDROGEN PRODUCTION. NOT ALL SUCH PETROLEUM REFINERIES WERE CANVASSED IN THIS SURVEY.

(4) EXCLUDES AMOUNTS PRODUCED AND USED IN THE MANUFACTURE OF AMMONIA AND AMMONIA DERIVATIVES.

(5) IMPUTATION RATE EXCEEDS 25 PERCENT.

## DESCRIPTION OF SURVEY

The statistics in this publication were collected on Census monthly Form M28A.2, "Industrial Gases - Production," and represent complete coverage of the approximately 670 producers of elemental gases, carbon dioxide, and acetylene.

The current month's figures may include estimates for respondents whose reports were not received in time for tabulation. Such missing figures are imputed from the month-to-month movements shown by reporting firms and are generally limited to a maximum of 25 percent to any one item. Individual items with higher imputation rates are footnoted.

The imputation rate is not an explicit indicator of the potential error in published figures due to non-response, because the actual monthly movements for nonrespondents may or may not closely agree with the imputed movements. The probable range of difference between the actual and imputed figures is unknown. The degree of uncertainty regarding the accuracy of the data, however, increases as the percentage of imputation increases. Figures with high imputation rates, therefore, should be used with caution.

Statistics for previous months may be revised, due to receipt of corrected data from respondents, including late reports for which estimates were made, corrections. Figures which were revised significantly are indicated by footnotes.

## REPORTING PERIOD ADJUSTMENT

Beginning January 1975 the data were adjusted for number of working days in the reporting period to compensate for differences in individual company reporting patterns (i.e., calendar month, 4-week, 5-week periods). It has been determined that the calendar month accounting system prevails in the industry. Hence, adjustments have been made to those reporting on other than a calendar month basis.

## TRADING-DAY FACTORS

Variation in the rate of activity that arises from the existence of different numbers of trading days in the same month for different years can be an important cause of month-to-month irregular fluctuations. Unlike some other causes of irregular fluctuations such as unexpected economic developments, unusual weather, and statistical errors, trading-day irregularities can be approximately identified and removed so that the underlying trend-cycle stands out more clearly. Hence,

it is often possible to reduce the irregular factor by a trading-day adjustment.

## SEASONAL ADJUSTMENT

This report presents seasonally adjusted data for a number of the most important series published monthly in Current Industrial Reports M28A.2, "Industrial Gases." The seasonal adjustment program largely eliminates the effect of normal seasonal variation (including variations due to vacations, weather, etc.) as measured over the time period for which data were used. The resulting information thus provides a better measure than the original data of the month-to-month variations which are due to factors that are not associated with a repetitive seasonal pattern.

## RELATED REPORTS

Monthly Current Industrial Report, Inorganic Chemicals, Series M28A, includes production and stock data for specified inorganic chemicals. Monthly CIR report, Inorganic Fertilizer Materials and Related Products, Series M28B, includes production and stock data for ammonia and ammonia compounds, phosphatic fertilizers, and sulfuric acid.

An annual Current Industrial Report covering production and shipments of industrial gases is published in this series. The annual report includes more historical data and product detail than are shown in the monthly reports, and also includes detail by States for a number of industrial gases. The report is numbered M28A, Supplement.

## EXPLANATION OF TERMS

**Production**—Data shown for production represent total quantity of each chemical produced, including quantity consumed in plants, and for sale or transfer to other plants or warehouses of the same company. The statistics presented in the tables provide an up-to-date measure of activity in the inorganic field, but do not necessarily indicate amounts entering the market. In some cases, figures are included for material produced "in process" as an intermediate to the end products.

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# CURRENT INDUSTRIAL REPORTS

REF ID: A66710

## Industrial Gases

April 1975



Issued June 1975

SERIES: M28C(75)-4

The statistics in this publication are based on a survey of manufacturers and represent U.S. production and stocks of industrial gases. Estimates are included for companies whose reports were not received in time for tabulation. A more complete description of the survey and the seasonal adjustment program appears on page 4.

TABLE 1A.--SEASONALLY ADJUSTED SUMMARY OF PRODUCTION OF PRINCIPAL GASES: 1973 TO 1975

Month and year	Acetylene (2813200)	Carbon dioxide (2813311) and (2813331)	Hydrogen, high and low purity (100%)	Nitrogen, high and low purity (100%)	Oxygen, high and low purity (100%)
	(Mil. cu. ft.)	(Short tons)	(Mil. cu. ft.)	(Mil. cu. ft.)	(Mil. cu. ft.)
<b>1975</b>					
April.....	513	109,682	4,774	19,383	28,145
March.....	448	111,118	4,727	18,567	30,405
February.....	492	107,556	4,623	19,317	32,849
January.....	468	106,966	4,956	19,551	31,652
<b>1974</b>					
December.....	587	129,037	5,577	20,037	31,456
November.....	606	110,799	6,208	19,298	32,785
October.....	620	120,139	6,625	20,276	33,280
September.....	615	122,504	6,127	20,676	33,511
August.....	604	119,407	6,152	20,003	32,653
July.....	592	115,699	6,104	19,603	32,490
June.....	633	123,318	6,106	19,867	31,881
May.....	645	128,105	5,864	19,602	31,898
April.....	657	127,465	5,894	19,421	32,139
March.....	661	124,070	5,800	19,423	31,952
February.....	649	115,687	5,984	19,152	31,999
January.....	603	122,150	5,691	19,766	32,427
<b>1973</b>					
December.....	603	145,151	5,625	19,861	32,447
November.....	619	139,984	5,596	19,755	33,270
October.....	617	137,602	5,448	19,423	33,297
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June.....	674	126,926	5,238	18,900	31,652
May.....	679	128,166	5,489	19,018	31,121
April.....	726	112,855	5,322	18,797	30,760
March.....	724	128,903	5,537	18,449	31,099
February.....	785	132,994	5,337	18,287	31,009
January.....	866	126,566	5,369	17,628	29,926

Inquiries concerning these figures should be addressed to the U.S. Department of Commerce, Bureau of the Census, Industry Division, Washington, D.C. 20233.



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TABLE 1B.--SUMMARY OF PRODUCTION OF PRINCIPAL GASES: 1973 TO 1975

Month and year	Acetylene (2813200)	Carbon dioxide, liquid abd gas (2813311)	Carbon dioxide, solid (2813331)	Hydrogen, high and low purity (100%)	Nitrogen, high and low purity (100%)	Oxygen, high and low purity (100%)
	(Mil. cu. ft.)	(Short tons)	(Short tons)	(Mil. cu. ft.)	(Mil. cu. ft.)	(Mil. cu. ft.)
1975						
April.....	r 499	86,193	21,154	4,750	19,130	28,138
March.....	r 422	84,990	21,277	4,899	19,364	32,199
February.....	r 477	77,998	17,399	4,416	18,282	30,763
January.....	483	77,932	21,279	4,981	19,785	32,095
1974						
December.....	604	90,767	21,802	5,644	19,857	31,958
November.....	637	86,509	19,838	6,059	18,949	32,359
October.....	667	95,555	30,154	6,578	20,702	34,085
September.....	613	101,868	28,649	5,980	20,305	32,595
August.....	594	98,400	32,742	5,981	20,183	31,632
July.....	571	94,503	32,771	6,233	19,819	31,810
June.....	615	99,803	29,014	5,960	19,550	31,467
May.....	646	107,657	27,420	6,004	20,071	33,142
April.....	638	98,961	24,445	5,882	19,148	32,718
March.....	628	99,420	22,020	5,956	20,238	33,382
February.....	631	83,124	19,484	5,699	18,126	30,062
January.....	626	87,021	22,309	5,719	20,043	32,684
1973						
December.....	665	91,608	22,035	5,801	19,733	33,329
November.....	663	91,929	23,990	5,647	19,215	33,035
October.....	653	102,479	28,636	5,909	19,953	34,092
September.....	622	84,572	31,151	5,482	19,203	31,959
August.....	650	100,845	35,132	5,654	19,484	31,667
July.....	627	99,474	33,902	5,329	19,221	32,328
June.....	633	89,366	30,271	5,627	18,601	31,273
May.....	659	87,283	25,186	5,010	19,326	32,203
April.....	661	79,999	22,219	4,680	18,035	32,627
March.....	717	86,164	21,379	4,958	18,544	32,945

Note: Beginning in January of 1975, the data are adjusted for report period variation. Comparable data are not available for previous years; however, the effect of this adjustment is considered to be negligible at the total level. See "Reporting Period Adjustment" in the text.

<sup>r</sup> Revised by 5 percent or more from previously published figures.

TABLE 2.--PRIMARY PRODUCTION OF SPECIFIED INDUSTRIAL GASES

PRODUCT CODE	CHEMICAL AND BASIS	UNIT OF MEASURE	APRIL 1975 QUANTITY PRODUCED	MARCH 1975 QUANTITY PRODUCED	APRIL 1974 QUANTITY PRODUCED
2813200	ACETYLENE (1) . . . . .	MIL.CU.FT	499	432 <sup>F</sup> 432	638
	PRODUCED FOR PIPELINE SHIPMENT (EXCLUDING THAT SHIPPED TO BE COMPRESSED) . . . . .	DO	168	169	271
	PRODUCED FOR COMPRESSION, INCLUDING CYLINDER AND PIPELINE . . . . .	DO	331	253	367
	PRODUCED FOR CONSUMPTION IN THIS PLANT . . . . .	DO			
2813415	ARGON, HIGH PURITY . . . . .	DO	392	416	394
	PRODUCED FOR CYLINDER AND BULK DELIVERY SHIPMENT . . . . .	DO	392	416	394
	PRODUCED FOR PIPELINE SHIPMENT . . . . .	DO			39-
	PRODUCED FOR CONSUMPTION IN THIS PLANT . . . . .	DO			-
2813311	CARBON DIOXIDE:				
	LIQUID AND GAS (2) . . . . .	S. TONS	86,193	<sup>T</sup> 84,990	98,961
2813331	SOLID (DRY ICE) . . . . .	DO	21,154	<sup>T</sup> 21,277	24,445
2813420	HYDROGEN, TOTAL (3) . . . . .	MIL.CU.FT	4,750	4,859	5,882
	PRODUCED FOR CYLINDER AND BULK DELIVERY SHIPMENT . . . . .	DO	518	624	646
	LIQUID PRODUCED FOR CONVERSION TO GAS . . . . .	DO			
	PRODUCED FOR PIPELINE SHIPMENT . . . . .	DO	834	1,020	1,102
	LIQUID PRODUCED FOR GOVERNMENT USE . . . . .	DO			
	PRODUCED FOR CONSUMPTION IN THIS PLANT . . . . .	DO	3,398	3,215	4,134
2813440	NITROGEN, TOTAL (4) . . . . .	DO	19,130	19,364	19,148
	GAS:				
	PRODUCED FOR CYLINDER AND BULK DELIVERY SHIPMENT . . . . .	DO	10,885	11,022	11,290
	PRODUCED FOR PIPELINE SHIPMENT . . . . .	DO			
	PRODUCED FOR CONSUMPTION IN THIS PLANT . . . . .	DO			
	LIQUID:				
	PRODUCED FOR CYLINDER AND BULK DELIVERY SHIPMENT . . . . .	DO	5,583	5,513	5,614
	PRODUCED FOR BULK SHIPMENT TO PIPELINES OR TO OTHER AIR SEPARATION PLANTS . . . . .	DO	972	1,023	732
	PRODUCED FOR CONSUMPTION IN THIS PLANT . . . . .	DO			
2813450	OXYGEN, TOTAL . . . . .	DO	28,138	32,199	32,720
	GAS:				
	PRODUCED FOR CYLINDER AND BULK DELIVERY SHIPMENT . . . . .	DO	31	30	27
	PRODUCED FOR PIPELINE SHIPMENT . . . . .	DO	21,085	23,865	23,948
	PRODUCED FOR CONSUMPTION IN THIS PLANT . . . . .	DO	( <sup>5</sup> )	( <sup>5</sup> )	( <sup>5</sup> )
	LIQUID:				
	PRODUCED FOR CYLINDER AND BULK DELIVERY SHIPMENT . . . . .	DO	3,001	4,288	4,180
	PRODUCED FOR BULK SHIPMENT TO PIPELINES OR TO OTHER AIR SEPARATION PLANTS . . . . .	DO	578	839	879
	PRODUCED FOR CONSUMPTION IN THIS PLANT . . . . .	DO	<sup>5</sup> 3,443	<sup>5</sup> 3,177	3,686

- REPRESENT ZERO.

(NA) NOT AVAILABLE

<sup>F</sup>REVISED BY 5 PERCENT OR MORE FROM PREVIOUSLY PUBLISHED FIGURES.

(1) EXCLUDES QUANTITIES OF ACETYLENE PRODUCED AND CONSUMED BY RAILROAD SHOPS, SHIPYARDS, AND SMALL ESTABLISHMENTS USING PORTABLE GENERATORS.

(2) EXCLUDES PRODUCTION OF LIQUID AND GAS CO<sub>2</sub> CONVERTED TO AND REPORTED AS DRY ICE AND ALSO AMOUNTS CONVERTED FROM PURE CO<sub>2</sub> (LIQUID OR SOLID) PURCHASED OR RECEIVED FROM OTHER PLANTS. ALSO EXCLUDES QUANTITIES PRODUCED AND CONSUMED IN PLANTS MANUFACTURING SODA ASH OR UREA.

(3) EXCLUDES QUANTITIES PRODUCED AND CONSUMED IN THE MANUFACTURE OF METHANOL AND AMMONIA, BUT INCLUDES AN UNSPECIFIED AMOUNT OF HYDROGEN PRODUCED FOR SALE OR INTER-PLANT TRANSFER TO PLANTS CONSUMING THIS GAS IN THE PRODUCTION OF AMMONIA. ALSO EXCLUDES AMOUNTS OF HYDROGEN PRODUCED IN PETROLEUM REFINERIES FOR CAPTIVE USE, HOWEVER, OF THE TOTAL SHOWN FOR LOWER PURITY HYDROGEN PRIOR TO 1969, 70 TO 75 PERCENT WAS ACCOUNTED FOR BY PETROLEUM REFINERS WITH CAPTIVE HYDROGEN PRODUCTION. NOT ALL SUCH PETROLEUM REFINERIES WERE CANVASSED IN THIS SURVEY.

(4) EXCLUDES AMOUNTS PRODUCED AND USED IN THE MANUFACTURE OF AMMONIA AND AMMONIA DERIVATIVES.

(5) IMPUTATION RATE EXCEEDS 25 PERCENT.

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# CURRENT INDUSTRIAL REPORTS

REFERENCE COPY

## Industrial Gases

May 1975



Issued July 1975

SERIES: M28C(75)-5

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June.....	674	126,926	5,238	18,900	31,652
May.....	679	128,166	5,489	19,018	31,121

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REFERENCE COPY

# CURRENT INDUSTRIAL REPORTS

## Industrial Gases

June 1975



Issued August 1975

M28C(75)-6

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Month and year	Acetylene (2813200)  (Mil. cu. ft.)	Carbon dioxide (2813311) and (2813331)  (Short tons)	Hydrogen, high and low purity (100%)  (Mil. cu. ft.)	Nitrogen, high and low purity (100%)  (Mil. cu. ft.)	Oxygen, high and low purity (100%)  (Mil. cu. ft.)
<b>1975</b>					
June.....	824	118,018	5,313	18,854	27,430
May.....	546	112,404	5,422	18,878	27,781
April.....	515	113,123	4,782	19,438	29,071
March.....	448	111,118	4,727	18,567	30,405
February.....	492	107,556	4,623	19,317	32,849
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TABLE 1B.--SUMMARY OF PRODUCTION OF PRINCIPAL GASES: 1973 TO 1975

(Not seasonally adjusted)

Month and year	Acetylene (2813200)  (Mil. cu. ft.)	Carbon dioxide, liquid and gas (2813311)  (Short tons)	Carbon dioxide, solid (2813331)  (Short tons)	Hydrogen, high and low purity (100%)  (Mil. cu. ft.)	Nitrogen, high and low purity (100%)  (Mil. cu. ft.)	Oxygen, high and low purity (100%)  (Mil. cu. ft.)
1975						
June.....	617	99,549	27,258	5,228	18,516	27,317
May.....	537	90,671	24,698	5,541	19,350	29,067
April.....	501	87,855	21,667	4,772	19,165	29,595
March.....	422	84,990	21,277	4,859	19,364	32,199
February.....	477	77,998	17,399	4,416	18,282	30,763
January.....	483	77,932	21,279	4,981	19,785	32,095
1974						
December.....	604	90,767	21,802	5,644	19,857	31,958
November.....	637	86,509	19,838	6,059	18,949	32,359
October.....	667	95,555	30,154	6,578	20,702	34,085
September.....	613	101,868	28,649	5,980	20,305	32,595
August.....	594	98,400	32,742	5,981	20,183	31,632
July.....	571	94,503	32,771	6,233	19,819	31,810
June.....	615	99,803	29,014	5,960	19,550	31,467
May.....	646	107,657	27,420	6,004	20,071	33,142
April.....	638	98,961	24,445	5,882	19,148	32,718
March.....	628	99,420	22,020	5,956	20,238	33,382
February.....	631	83,124	19,484	5,699	18,126	30,062
January.....	626	87,021	22,309	5,719	20,043	32,684
1973						
December.....	665	91,608	22,035	5,801	19,733	33,329
November.....	663	91,929	23,990	5,647	19,215	33,035
October.....	653	102,479	28,636	5,909	19,953	34,092
September.....	622	84,572	31,151	5,482	19,203	31,959
August.....	650	100,845	35,132	5,654	19,484	31,667
July.....	627	99,474	33,902	5,329	19,221	32,328
June.....	633	89,366	30,271	5,627	18,601	31,273

Note: Beginning in January of 1975, the data are adjusted for report period variation. Comparable data are not available for previous years; however, the effect of this adjustment is considered to be negligible at the total level. See "Reporting Period Adjustment" in the text.

TABLE 2.--PRIMARY PRODUCTION OF SPECIFIED INDUSTRIAL GASES

PRODUCT CODE	CHEMICAL AND BASIS	UNIT OF MEASURE	JUNE 1975 QUANTITY PRODUCED	MAY 1975 QUANTITY PRODUCED	JUNE 1974 QUANTITY PRODUCED
2813200	ACETYLENE (1) . . . . .	MIL.CU.FT	617	537	615
	PRODUCED FOR PIPELINE SHIPMENT (EXCLUDING THAT SHIPPED TO BE COMPRESSED) . . . . .	DO	297	199	250
	PRODUCED FOR COMPRESSION, INCLUDING CYLINDER AND PIPELINE . . . . .	DO	320	338	116
	PRODUCED FOR CONSUMPTION IN THIS PLANT. . . . .	DO			249
2813415	ARGON, HIGH PURITY . . . . .	DO	327	350	376
	PRODUCED FOR CYLINDER AND BULK DELIVERY SHIPMENT . . . . .	DO	327	350	376
	PRODUCED FOR PIPELINE SHIPMENT. . . . .	DO			-
	PRODUCED FOR CONSUMPTION IN THIS PLANT. . . . .	DO			-
2813311	CARBON DIOXIDE:	S.TONS	99,549	90,671	99,803
2813331	LIQUID AND GAS (2) . . . . .	DO	27,258	24,698	29,014
2813420	SOLID (DRY ICE) . . . . .				
	HYDROGEN, TOTAL (3) . . . . .	MIL.CU.FT	5,228	5,541	5,960
	PRODUCED FOR CYLINDER AND BULK DELIVERY SHIPMENT . . . . .	DO	538	548	530
	LIQUID PRODUCED FOR CONVERSION TO GAS . . . . .	DO			
	PRODUCED FOR PIPELINE SHIPMENT. . . . .	DO	995	1,131	1,077
	LIQUID PRODUCED FOR GOVERNMENT USE. . . . .	DO	3,695	3,862	4,353
	PRODUCED FOR CONSUMPTION IN THIS PLANT. . . . .	DO			
2813440	NITROGEN, TOTAL (4) . . . . .	DO	18,516	19,350	19,550
	GAS:				
	PRODUCED FOR CYLINDER AND BULK DELIVERY SHIPMENT. . . . .	DO	<sup>5</sup> 92	103	173
	PRODUCED FOR PIPELINE SHIPMENT . . . . .	DO	10,542	11,104	11,287
	PRODUCED FOR CONSUMPTION IN THIS PLANT . . . . .	DO	1,772	1,863	1,597
	LIQUID:				
	PRODUCED FOR CYLINDER AND BULK DELIVERY SHIPMENT. . . . .	DO	5,295	5,601	5,732
	PRODUCED FOR BULK SHIPMENT TO PIPELINES OR TO OTHER AIR SEPARATION PLANTS. . . . .	DO	568	430	761
	PRODUCED FOR CONSUMPTION IN THIS PLANT . . . . .	DO	247	249	
2813450	OXYGEN, TOTAL . . . . .	DO	27,317	29,067	31,467
	GAS:				
	PRODUCED FOR CYLINDER AND BULK DELIVERY SHIPMENT. . . . .	DO	34	34	293
	PRODUCED FOR PIPELINE SHIPMENT . . . . .	DO	19,448	20,839	22,986
	PRODUCED FOR CONSUMPTION IN THIS PLANT . . . . .	DO	( <sup>6</sup> )	( <sup>6</sup> )	( <sup>6</sup> )
	LIQUID:				
	PRODUCED FOR CYLINDER AND BULK DELIVERY SHIPMENT. . . . .	DO	3,541	4,042	4,103
	PRODUCED FOR BULK SHIPMENT TO PIPELINES OR TO OTHER AIR SEPARATION PLANTS. . . . .	DO	872	886	834
	PRODUCED FOR CONSUMPTION IN THIS PLANT . . . . .	DO	<sup>6</sup> 3,422	<sup>6</sup> 3,266	3,251

(NA) Not available.

<sup>1</sup>Revised by 5 percent or more from previously published figures.<sup>2</sup>Excludes quantities of acetylene produced and consumed by railroad shops, shipyards, and small establishments using portable generators.<sup>3</sup>Excludes production of liquid and gas CO<sub>2</sub> converted to and reported as dry ice and also amounts converted from pure CO<sub>2</sub> (liquid or solid) purchased or received from other plants. Also excludes quantities produced and consumed in plants manufacturing soda ash or urea.<sup>4</sup>Excludes quantities produced and consumed in the manufacture of methanol and ammonia, but includes an unspecified amount of hydrogen produced for sale or interplant transfer to plants consuming this gas in the production of ammonia. Also excludes amounts of hydrogen produced in petroleum refineries for captive use. However, of the total shown for lower purity hydrogen prior to 1969, 70 to 75 percent was accounted for by petroleum refiners with captive hydrogen production. Not all such petroleum refineries were canvassed in this survey.<sup>5</sup>Excludes amounts produced and used in the manufacture of ammonia derivatives.<sup>6</sup>Imputation rate exceeds 25 percent.<sup>6</sup>Data for oxygen (gas), produced for consumption in this plant, combined with data for oxygen (liquid), produced for consumption in this plant, to avoid disclosure.

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July 1975



Issued September 1975

M28C(75)-7

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August.....	663	129,394	5,494	19,153	33,021
July.....	668	132,285	5,500	19,277	32,953

Inquiries concerning these figures should be addressed to the U.S. Department of Commerce, Bureau of the Census, Industry Division, Washington, D.C. 20233.

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TABLE 1B.--SUMMARY OF PRODUCTION OF PRINCIPAL GASES: 1973 TO 1975

(Not seasonally adjusted)

Month and year	Acetylene (2813200)  (Mil. cu. ft.)	Carbon dioxide, liquid and gas (2813311)  (Short tons)	Carbon dioxide, solid (2813331)  (Short tons)	Hydrogen, high and low purity (100%)  (Mil. cu. ft.)	Nitrogen, high and low purity (100%)  (Mil. cu. ft.)	Oxygen, high and low purity (100%)  (Mil. cu. ft.)
<b>1975</b>						
July.....	536	103,808	30,104	5,493	19,023	27,150
June.....	<sup>r</sup> 539	99,549	27,306	5,214	18,688	27,014
May.....	537	90,671	24,698	5,541	19,350	29,067
April.....	501	87,855	21,667	4,772	19,165	29,595
March.....	422	84,990	21,277	4,859	19,364	32,199
February.....	477	77,998	17,399	4,416	18,282	30,763
January.....	483	77,932	21,279	4,981	19,785	32,095
<b>1974</b>						
December.....	604	90,767	21,802	5,644	19,857	31,958
November.....	637	86,509	19,838	6,059	18,949	32,359
October.....	667	95,555	30,154	6,578	20,702	34,085
September.....	613	101,868	28,649	5,980	20,305	32,595
August.....	594	98,400	32,742	5,981	20,183	31,632
July.....	571	94,503	32,771	6,233	19,819	31,810
June.....	615	99,803	29,014	5,960	19,550	31,467
May.....	646	107,657	27,420	6,004	20,071	33,142
April.....	638	98,961	24,445	5,882	19,148	32,718
March.....	628	99,420	22,020	5,956	20,238	33,382
February.....	631	83,124	19,484	5,699	18,126	30,062
January.....	626	87,021	22,309	5,719	20,043	32,684
<b>1973</b>						
December.....	665	91,608	22,035	5,801	19,733	33,329
November.....	663	91,929	23,990	5,647	19,215	33,035
October.....	653	102,479	28,636	5,909	19,953	34,092
September.....	622	84,572	31,151	5,482	19,203	31,959
August.....	650	100,845	35,132	5,654	19,484	31,667
July.....	627	99,474	33,902	5,329	19,221	32,328

Note: Beginning in January of 1975, the data are adjusted for report period variation. Comparable data are not available for previous years; however, the effect of this adjustment is considered to be negligible at the total level. See "Reporting Period Adjustment" in the text.

<sup>r</sup>Revised by 5 percent or more from previously published figures.

TABLE 2.--PRIMARY PRODUCTION OF SPECIFIED INDUSTRIAL GASES

PRODUCT CODE	CHEMICAL AND BASIS	UNIT OF MEASURE	JULY 1975 QUANTITY PRODUCED	JUNE 1975 QUANTITY PRODUCED	JULY 1974 QUANTITY PRODUCED
2813200	ACETYLENE (1) . . . . .	MIL.CU.FT	536	539	571
	PRODUCED FOR PIPELINE SHIPMENT (EXCLUDING THAT SHIPPED TO BE COMPRESSED) . . . . .	DO	200	221	233
	PRODUCED FOR COMPRESSION, INCLUDING CYLINDER AND PIPELINE . . . . .	DO	336	318	113
	PRODUCED FOR CONSUMPTION IN THIS PLANT. . . . .	DO			225
2813415	ARGON, HIGH PURITY . . . . .	DO	362	327	363
	PRODUCED FOR CYLINDER AND BULK DELIVERY SHIPMENT . . . . .	DO	362	327	363
	PRODUCED FOR PIPELINE SHIPMENT. . . . .	DO			-
	PRODUCED FOR CONSUMPTION IN THIS PLANT. . . . .	DO			-
2813311	CARBON DIOXIDE: LIQUID AND GAS (2) . . . . .	S.TONS	103,808	99,549	94,503
2813331	SOLID (DRY ICE) . . . . .	DO	30,104	27,306	32,771
2813420	HYDROGEN, TOTAL (3) . . . . .	MIL.CU.FT	5,493	5,214	6,233
	PRODUCED FOR CYLINDER AND BULK DELIVERY SHIPMENT . . . . .	DO	531	537	555
	LIQUID PRODUCED FOR CONVERSION TO GAS . . . . .	DO			
	PRODUCED FOR PIPELINE SHIPMENT. . . . .	DO	1,077	995	1,208
	LIQUID PRODUCED FOR GOVERNMENT USE. . . . .	DO			
	PRODUCED FOR CONSUMPTION IN THIS PLANT. . . . .	DO	3,885	3,681	4,470
2813440	NITROGEN, TOTAL (4) . . . . .	DO	19,023	18,688	19,819
	GAS: PRODUCED FOR CYLINDER AND BULK DELIVERY SHIPMENT. . . . .	DO	83	92	248
	PRODUCED FOR PIPELINE SHIPMENT . . . . .	DO	10,904	10,650	11,320
	PRODUCED FOR CONSUMPTION IN THIS PLANT . . . . .	DO	1,756	1,772	1,521
	LIQUID: PRODUCED FOR CYLINDER AND BULK DELIVERY SHIPMENT. . . . .	DO	5,367	5,344	5,897
	PRODUCED FOR BULK SHIPMENT TO PIPELINES OR TO OTHER AIR SEPARATION PLANTS. . . . .	DO	638	568	833
	PRODUCED FOR CONSUMPTION IN THIS PLANT . . . . .	DO	275	262	
2813450	OXYGEN, TOTAL. . . . .	DO	27,150	27,014	31,810
	GAS: PRODUCED FOR CYLINDER AND BULK DELIVERY SHIPMENT. . . . .	DO	30	34	300
	PRODUCED FOR PIPELINE SHIPMENT . . . . .	DO	18,856	18,641	23,685
	PRODUCED FOR CONSUMPTION IN THIS PLANT . . . . .	DO	( <sup>6</sup> )	( <sup>6</sup> )	( <sup>6</sup> )
	LIQUID: PRODUCED FOR CYLINDER AND BULK DELIVERY SHIPMENT. . . . .	DO	3,782	3,541	3,825
	PRODUCED FOR BULK SHIPMENT TO PIPELINES OR TO OTHER AIR SEPARATION PLANTS. . . . .	DO	672	872	774
	PRODUCED FOR CONSUMPTION IN THIS PLANT . . . . .	DO	<sup>6</sup> 3,810	<sup>6</sup> 3,926	<sup>6</sup> 3,246

(NA) Not available.

<sup>1</sup>Revised by 5 percent or more from previously published figures.<sup>2</sup>Excludes quantities of acetylene produced and consumed by railroad shops, shipyards, and small establishments using portable generators.<sup>3</sup>Excludes production of liquid and gas CO<sub>2</sub> converted to and reported as dry ice and also amounts converted from pure CO<sub>2</sub> (liquid or solid) purchased or received from other plants. Also excludes quantities produced and consumed in plants manufacturing soda ash or urea.<sup>4</sup>Excludes quantities produced and consumed in the manufacture of methanol and ammonia, but includes an unspecified amount of hydrogen produced for sale or interplant transfer to plants consuming this gas in the production of ammonia. Also excludes amounts of hydrogen produced in petroleum refineries for captive use. However, of the total shown for lower purity hydrogen prior to 1969, 70 to 75 percent was accounted for by petroleum refiners with captive hydrogen production. Not all such petroleum refineries were canvassed in this survey.<sup>5</sup>Excludes amounts produced and used in the manufacture of ammonia and ammonia derivatives.<sup>6</sup>Imputation rate exceeds 25 percent.<sup>7</sup>Data for oxygen (gas), produced for consumption in this plant, combined with data for oxygen (liquid) produced for consumption in this plant, to avoid disclosure.

## DESCRIPTION OF SURVEY

The statistics in this publication were collected on Census monthly Form M28A.2, "Industrial Gases - Production," and represent complete coverage of the approximately 670 producers of elemental gases, carbon dioxide, and acetylene.

The current month's figures may include estimates for respondents whose reports were not received in time for tabulation. Such missing figures are imputed from the month-to-month movements shown by reporting firms and are generally limited to a maximum of 25 percent to any one item. Individual items with higher imputation rates are footnoted.

The imputation rate is not an explicit indicator of the potential error in published figures due to non-response, because the actual monthly movements for nonrespondents may or may not closely agree with the imputed movements. The probable range of difference between the actual and imputed figures is unknown. The degree of uncertainty regarding the accuracy of the data, however, increases as the percentage of imputation increases. Figures with high imputation rates, therefore, should be used with caution.

Statistics for previous months may be revised, due to receipt of corrected data from respondents, including late reports for which estimates were made, corrections. Figures which were revised significantly are indicated by footnotes.

## REPORTING PERIOD ADJUSTMENT

Beginning January 1975 the data were adjusted for number of working days in the reporting period to compensate for differences in individual company reporting patterns (i.e., calendar month, 4-week, 5-week periods). It has been determined that the calendar month accounting system prevails in the industry. Hence, adjustments have been made to those reporting on other than a calendar month basis.

## TRADING-DAY FACTORS

Variation in the rate of activity that arises from the existence of different numbers of trading days in the same month for different years can be an important cause of month-to-month irregular fluctuations. Unlike some other causes of irregular fluctuations such as unexpected economic developments, unusual weather, and statistical errors, trading-day irregularities can be approximately identified and removed so that the underlying trend-cycle stands out more clearly. Hence,

it is often possible to reduce the irregular factor by a trading-day adjustment.

## SEASONAL ADJUSTMENT

This report presents seasonally adjusted data for a number of the most important series published monthly in Current Industrial Reports M28A.2, "Industrial Gases." The seasonal adjustment program largely eliminates the effect of normal seasonal variation (including variations due to vacations, weather, etc.) as measured over the time period for which data were used. The resulting information thus provides a better measure than the original data of the month-to-month variations which are due to factors that are not associated with a repetitive seasonal pattern.

## RELATED REPORTS

Monthly Current Industrial Report, Inorganic Chemicals, Series M28A, includes production and stock data for specified inorganic chemicals. Monthly CIR report, Inorganic Fertilizer Materials and Related Products, Series M28B, includes production and stock data for ammonia and ammonia compounds, phosphatic fertilizers, and sulfuric acid.

An annual Current Industrial Report covering production and shipments of industrial gases is published in this series. The annual report includes more historical data and product detail than are shown in the monthly reports, and also includes detail by States for a number of industrial gases. The report is numbered M28A, Supplement.

## EXPLANATION OF TERMS

**Production**—Data shown for production represent total quantity of each chemical produced, including quantity consumed in plants, and for sale or transfer to other plants or warehouses of the same company. The statistics presented in the tables provide an up-to-date measure of activity in the inorganic field, but do not necessarily indicate amounts entering the market. In some cases, figures are included for material produced "in process" as an intermediate to the end products.

**Stocks**—Data shown for stocks represent quantities on hand, at the end of the month, at producing locations only, unless footnoted to indicate that the stock figure represents total stocks of producing companies including amounts held at locations other than producing plants.



# CURRENT INDUSTRIAL REPORTS

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## Industrial Gases

August 1975



Issued October 1975

SERIES: M28C(75)-8

The statistics in this publication are based on a survey of manufacturers and represent U.S. production and stocks of industrial gases. Estimates are included for companies whose reports were not received in time for tabulation. A more complete description of the survey and the seasonal adjustment program appears on page 4.

TABLE 1A.--SEASONALLY ADJUSTED SUMMARY OF PRODUCTION OF PRINCIPAL GASES: 1973 TO 1975

Month and year	Acetylene (2813200)  (Mil. cu. ft.)	Carbon dioxide (2813311) and (2813331)  (Short tons)	Hydrogen, high and low purity (100%)  (Mil. cu. ft.)	Nitrogen, high and low purity (100%)  (Mil. cu. ft.)	Oxygen, high and low purity (100%)  (Mil. cu. ft.)
<b>1975</b>					
August.....	606	124,441	6,030	19,994	28,777
July.....	580	123,595	5,420	19,356	27,525
June.....	544	118,062	5,298	19,029	27,098
May.....	546	112,404	5,422	18,878	27,781
April.....	515	113,123	4,782	19,438	29,071
March.....	448	111,118	4,727	18,567	30,405
February.....	492	107,556	4,623	19,317	32,849
January.....	468	106,966	4,956	19,551	31,652
<b>1974</b>					
December.....	587	129,037	5,577	20,037	31,456
November.....	606	110,799	6,208	19,298	32,785
October.....	620	120,139	6,625	20,276	33,260
September.....	615	122,504	6,127	20,676	33,511
August.....	604	119,407	6,152	20,003	32,653
July.....	592	113,699	6,104	19,603	32,490
June.....	633	123,318	6,106	19,867	31,881
May.....	645	128,105	5,864	19,602	31,898
April.....	657	127,465	5,894	19,421	32,139
March.....	661	124,070	5,800	19,423	31,952
February.....	649	115,687	5,984	19,152	31,999
January.....	603	122,150	5,691	19,766	32,427
<b>1973</b>					
December.....	603	145,151	5,625	19,861	32,447
November.....	619	139,984	5,596	19,755	33,270
October.....	617	137,602	5,448	19,423	33,297
September.....	665	130,461	5,507	19,720	33,220
August.....	663	129,394	5,494	19,153	33,021

Inquiries concerning these figures should be addressed to the U.S. Department of Commerce, Bureau of the Census, Industry Division, Washington, D.C. 20233.

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TABLE 1B.--SUMMARY OF PRODUCTION OF PRINCIPAL GASES: 1973 TO 1975

(Not seasonally adjusted)

Month and year	Acetylene (2813200)	Carbon dioxide, liquid and gas (2813311)	Carbon dioxide, solid (2813331)	Hydrogen, high and low purity (100%)	Nitrogen, high and low purity (100%)	Oxygen, high and low purity (100%)
	(Mil. cu. ft.)	(Short tons)	(Short tons)	(Mil. cu. ft.)	(Mil. cu. ft.)	(Mil. cu. ft.)
1975						
August.....	589	110,838	28,761	5,874	20,154	27,574
July.....	<sup>1</sup> 567	102,731	30,017	5,485	19,453	26,895
June.....	<sup>1</sup> 539	99,549	27,306	5,214	18,688	27,014
May.....	537	90,671	24,698	5,541	19,350	29,067
April.....	501	87,855	21,667	4,772	19,165	29,595
March.....	422	84,990	21,277	4,859	19,364	32,199
February.....	477	77,998	17,399	4,416	18,282	30,763
January.....	483	77,932	21,279	4,981	19,785	32,095
1974						
December.....	604	90,767	21,802	5,644	19,857	31,958
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October.....	653	102,479	28,636	5,909	19,953	34,092
September.....	622	84,572	31,151	5,482	19,203	31,959
August.....	650	100,845	35,132	5,654	19,484	31,667

Note: Beginning in January of 1975, the data are adjusted for report period variation. Comparable data are not available for previous years; however, the effect of this adjustment is considered to be negligible at the total level. See "Reporting Period Adjustment" in the text.

<sup>1</sup>Revised by 5 percent or more from previously published figures.

TABLE 2.--PRIMARY PRODUCTION OF SPECIFIED INDUSTRIAL GASES

PRODUCT CODE	CHEMICAL AND BASIS	UNIT OF MEASURE	AUGUST 1975 QUANTITY PRODUCED	JULY 1975 QUANTITY PRODUCED	AUGUST 1974 QUANTITY PRODUCED
2813200	ACETYLENE (1) . . . . .	MIL,CU.FT	589	567	594
	PRODUCED FOR PIPELINE SHIPMENT (EXCLUDING THAT SHIPPED TO BE COMPRESSED) . . . . .	DO	245	230	266
	PRODUCED FOR COMPRESSION, INCLUDING CYLINDER AND PIPELINE . . . . .	DO	103	102	119
	PRODUCED FOR CONSUMPTION IN THIS PLANT . . . . .	DO	241	235	209
2813415	ARGON, HIGH PURITY . . . . .	DO	334	365	383
	PRODUCED FOR CYLINDER AND BULK DELIVERY SHIPMENT . . . . .	DO			383
	PRODUCED FOR PIPELINE SHIPMENT . . . . .	DO	334	365	-
	PRODUCED FOR CONSUMPTION IN THIS PLANT . . . . .	DO			-
2813311	CARBON DIOXIDE: LIQUID AND GAS (2) . . . . .	S.TONS	110,838	102,731	98,400
2813331	SOLID (DRY ICE) . . . . .	DO	28,761	30,017	32,742
2813420	HYDROGEN, TOTAL (3) . . . . .	MIL,CU.FT	5,874	5,485	5,981
	PRODUCED FOR CYLINDER AND BULK DELIVERY SHIPMENT . . . . .	DO			521
	LIQUID PRODUCED FOR CONVERSION TO GAS . . . . .	DO	530	531	
	PRODUCED FOR PIPELINE SHIPMENT . . . . .	DO	1,136	1,067	1,283
	LIQUID PRODUCED FOR GOVERNMENT USE . . . . .	DO			
	PRODUCED FOR CONSUMPTION IN THIS PLANT . . . . .	DO	4,209	3,887	4,177
2813440	NITROGEN, TOTAL (4) . . . . .	DO	20,154	19,453	20,182
	GAS: PRODUCED FOR CYLINDER AND BULK DELIVERY SHIPMENT . . . . .	DO	26	<sup>F</sup> 12	327
	PRODUCED FOR PIPELINE SHIPMENT . . . . .	DO	11,713	<sup>F</sup> 11,169	11,138
	PRODUCED FOR CONSUMPTION IN THIS PLANT . . . . .	DO	1,597	1,756	1,710
	LIQUID: PRODUCED FOR CYLINDER AND BULK DELIVERY SHIPMENT . . . . .	DO	5,943	5,619	6,176
	PRODUCED FOR BULK SHIPMENT TO PIPELINES OR TO OTHER AIR SEPARATION PLANTS . . . . .	DO	593	622	
	PRODUCED FOR CONSUMPTION IN THIS PLANT . . . . .	DO	282	275	831
2813450	OXYGEN, TOTAL . . . . .	DO	27,574	<sup>F</sup> 26,895	31,832
	GAS: PRODUCED FOR CYLINDER AND BULK DELIVERY SHIPMENT . . . . .	DO	20	18	298
	PRODUCED FOR PIPELINE SHIPMENT . . . . .	DO	19,271	18,429	23,079
	PRODUCED FOR CONSUMPTION IN THIS PLANT . . . . .	DO	( <sup>e</sup> )	( <sup>e</sup> )	( <sup>e</sup> )
	LIQUID: PRODUCED FOR CYLINDER AND BULK DELIVERY SHIPMENT . . . . .	DO	3,414	3,765	4,231
	PRODUCED FOR BULK SHIPMENT TO PIPELINES OR TO OTHER AIR SEPARATION PLANTS . . . . .	DO	676	835	835
	PRODUCED FOR CONSUMPTION IN THIS PLANT . . . . .	DO	<sup>e</sup> 4,193	<sup>e</sup> 4,048	3,189

(NA) Not available. <sup>F</sup>Revised by 5 percent or more from previously published figures.<sup>1</sup>Excludes quantities of acetylene produced and consumed by railroad shops, shipyards, and small establishments using portable generators.<sup>2</sup>Excludes production of liquid and gas CO<sub>2</sub> converted to and reported as dry ice and also amounts converted from pure CO<sub>2</sub> (liquid or solid) purchased or received from other plants. Also excludes quantities produced and consumed in plants manufacturing soda ash or urea.<sup>3</sup>Excludes quantities produced and consumed in the manufacture of methanol and ammonia, but includes an unspecified amount of hydrogen produced for sale or interplant transfer to plants consuming this gas in the production of ammonia. Also excludes amounts of hydrogen produced in petroleum refineries for captive use. However, of the total shown for lower purity hydrogen prior to 1969, 70 to 75 percent was accounted for by petroleum refiners with captive hydrogen production. Not all such petroleum refineries were canvassed in this survey.<sup>4</sup>Excludes amounts produced and used in the manufacture of ammonia and ammonia derivatives.<sup>5</sup>Imputation rate exceeds 25 percent.<sup>6</sup>Data for oxygen (gas), produced for consumption this plant combined with data for oxygen (liquid) produced for consumption this plant to avoid disclosure.

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# CURRENT INDUSTRIAL REPORTS

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## Industrial Gases

September 1975



Issued November 1975

SERIES: M28C(75)-9

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October.....	620	120,139	6,625	20,276	33,260
September.....	615	122,504	6,127	20,676	33,511
August.....	604	119,407	6,152	20,003	32,653
July.....	592	115,699	6,104	19,603	32,490
June.....	633	123,318	6,106	19,867	31,881
May.....	645	126,105	5,864	19,602	31,898
April.....	657	127,465	5,894	19,421	32,139
March.....	661	124,070	5,800	19,423	31,952
February.....	649	115,687	5,984	19,152	31,999
January.....	603	122,150	5,691	19,766	32,427
<b>1973</b>					
December.....	603	145,151	5,625	19,861	32,447
November.....	619	139,984	5,596	19,755	33,270
October.....	617	137,602	5,448	19,423	33,297
September.....	665	130,461	5,607	19,720	33,220

Inquiries concerning these figures should be addressed to the U.S. Department of Commerce, Bureau of the Census, Industry Division, Washington, D.C. 20233.



U.S. DEPARTMENT OF COMMERCE Bureau of the Census

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TABLE 1B.--SUMMARY OF PRODUCTION OF PRINCIPAL GASES: 1973 TO 1975

(Not seasonally adjusted)

Month and year	Acetylene (2813200) (Mil. cu. ft.)	Carbon dioxide, liquid and gas (2813311) (Short tons)	Carbon dioxide, solid (2813331) (Short tons)	Hydrogen, high and low purity (100%) (Mil. cu. ft.)	Nitrogen, high and low purity (100%) (Mil. cu. ft.)	Oxygen, high and low purity (100%) (Mil. cu. ft.)
1975						
September.....	590	106,106	24,617	6,621	20,049	29,645
August.....	592	109,353	28,719	5,857	19,971	27,558
July.....	<sup>r</sup> 567	102,731	30,017	5,485	19,453	26,895
June.....	<sup>r</sup> 539	99,549	27,306	5,214	18,688	27,014
May.....	537	90,671	24,698	5,541	19,350	29,067
April.....	501	87,855	21,667	4,772	19,165	29,595
March.....	422	84,990	21,277	4,859	19,364	32,199
February.....	477	77,998	17,399	4,416	18,282	30,763
January.....	483	77,932	21,279	4,981	19,785	32,095
1974						
December.....	604	90,767	21,802	5,644	19,857	31,958
November.....	637	86,509	19,838	6,059	18,949	32,359
October.....	667	95,555	30,154	6,578	20,702	34,085
September.....	613	101,868	28,649	5,980	20,305	32,595
August.....	594	98,400	32,742	5,981	20,183	31,632
July.....	571	94,503	32,771	6,233	19,819	31,810
June.....	615	99,803	29,014	5,960	19,550	31,467
May.....	646	107,657	27,420	6,004	20,071	33,142
April.....	638	98,961	24,445	5,882	19,148	32,718
March.....	628	99,420	22,020	5,956	20,238	33,382
February.....	631	83,124	19,484	5,699	18,126	30,062
January.....	626	87,021	22,309	5,719	20,043	32,684
1973						
December.....	665	91,608	22,035	5,801	19,733	33,329
November.....	663	91,929	23,990	5,647	19,215	33,035
October.....	653	102,479	28,636	5,909	19,953	34,092
September.....	622	84,572	31,151	5,482	19,203	31,959

Note: Beginning in January of 1975, the data are adjusted for report period variation. Comparable data are not available for previous years; however, the effect of this adjustment is considered to be negligible at the total level. See "Reporting Period Adjustment" in the text.

<sup>r</sup>Revised by 5 percent or more from previously published figures.

TABLE 2.--PRIMARY PRODUCTION OF SPECIFIED INDUSTRIAL GASES

PRODUCT CODE	CHEMICAL AND BASIS	UNIT OF MEASURE	SEPTEMBER 1975 QUANTITY PRODUCED	AUGUST 1975 QUANTITY PRODUCED	SEPTEMBER 1974 QUANTITY PRODUCED
2813200	ACETYLENE (1) . . . . .	MIL.CU.FT	590	592	613
	PRODUCED FOR PIPELINE SHIPMENT (EXCLUDING THAT SHIPPED TO BE COMPRESSED) . . . . .	DO	241	244	268
	PRODUCED FOR COMPRESSION, INCLUDING CYLINDER AND PIPELINE . . . . .	DO	114	103	122
	PRODUCED FOR CONSUMPTION IN THIS PLANT . . . . .	DO	234	245	223
2813415	ARGON, HIGH PURITY . . . . .	DO	371	334	396
	PRODUCED FOR CYLINDER AND BULK DELIVERY SHIPMENT . . . . .	DO	371	334	396
	PRODUCED FOR PIPELINE SHIPMENT . . . . .	DO			
	PRODUCED FOR CONSUMPTION IN THIS PLANT . . . . .	DO			
2813311	CARBON DIOXIDE: LIQUID AND GAS (2) . . . . .	S.TONS	106,106	109,353	101,868
2813331	SOLID (DRY ICE) . . . . .	DO	24,617	28,719	28,649
2813420	HYDROGEN, TOTAL (3) . . . . .	MIL.CU.FT	6,621	5,857	5,980
	PRODUCED FOR CYLINDER AND BULK DELIVERY SHIPMENT . . . . .	DO	537	512	519
	LIQUID PRODUCED FOR CONVERSION TO GAS . . . . .	DO			
	PRODUCED FOR PIPELINE SHIPMENT . . . . .	DO			
	LIQUID PRODUCED FOR GOVERNMENT USE . . . . .	DO	1,129	1,144	1,286
	PRODUCED FOR CONSUMPTION IN THIS PLANT . . . . .	DO	4,955	4,201	4,175
2813440	NITROGEN, TOTAL (4) . . . . .	DO	20,049	19,971	20,305
	GAS: PRODUCED FOR CYLINDER AND BULK DELIVERY SHIPMENT . . . . .	DO	33	26	330
	PRODUCED FOR PIPELINE SHIPMENT . . . . .	DO	11,801	11,583	11,679
	PRODUCED FOR CONSUMPTION IN THIS PLANT . . . . .	DO	1,745	1,771	1,574
	LIQUID: PRODUCED FOR CYLINDER AND BULK DELIVERY SHIPMENT . . . . .	DO	5,674	5,750	5,930
	PRODUCED FOR BULK SHIPMENT TO PIPELINES OR TO OTHER AIR SEPARATION PLANTS . . . . .	DO	535	589	530
	PRODUCED FOR CONSUMPTION IN THIS PLANT . . . . .	DO	261	282	262
2813450	OXYGEN, TOTAL . . . . .	DO	29,645	27,558	32,585
	GAS: PRODUCED FOR CYLINDER AND BULK DELIVERY SHIPMENT . . . . .	DO	20	20	334
	PRODUCED FOR PIPELINE SHIPMENT . . . . .	DO	20,601	19,240	23,781
	PRODUCED FOR CONSUMPTION IN THIS PLANT . . . . .	DO	(6)	(6)	(6)
	LIQUID: PRODUCED FOR CYLINDER AND BULK DELIVERY SHIPMENT . . . . .	DO	4,364	3,400	4,227
	PRODUCED FOR BULK SHIPMENT TO PIPELINES OR TO OTHER AIR SEPARATION PLANTS . . . . .	DO	664	699	938
	PRODUCED FOR CONSUMPTION IN THIS PLANT . . . . .	DO	63,996	64,199	3,315

(NA) NOT AVAILABLE

REVISED BY 5 PERCENT OR MORE FROM PREVIOUSLY PUBLISHED FIGURES.

(1) EXCLUDES QUANTITIES OF ACETYLENE PRODUCED AND CONSUMED BY RAILROAD SHOPS, SHIPYARDS, AND SMALL ESTABLISHMENTS USING PORTABLE GENERATORS.

(2) EXCLUDES PRODUCTION OF LIQUID AND GAS CO<sub>2</sub> CONVERTED TO AND REPORTED AS DRY ICE AND ALSO AMOUNTS CONVERTED FROM PURE CO<sub>2</sub> (LIQUID OR SOLID) PURCHASED OR RECEIVED FROM OTHER PLANTS. ALSO EXCLUDES QUANTITIES PRODUCED AND CONSUMED IN PLANTS MANUFACTURING SODA ASH OR UREA.

(3) EXCLUDES QUANTITIES PRODUCED AND CONSUMED IN THE MANUFACTURE OF METHANOL AND AMMONIA, BUT INCLUDES AN UNSPECIFIED AMOUNT OF HYDROGEN PRODUCED FOR SALE OR INTER-PLANT TRANSFER TO PLANTS CONSUMING THIS GAS IN THE PRODUCTION OF AMMONIA. ALSO EXCLUDES AMOUNTS OF HYDROGEN PRODUCED IN PETROLEUM REFINERIES FOR CAPTIVE USE, HOWEVER, OF THE TOTAL SHOWN FOR LOWER PURITY HYDROGEN PRIOR TO 1969, 70 TO 75 PERCENT WAS ACCOUNTED FOR BY PETROLEUM REFINERS WITH CAPTIVE HYDROGEN PRODUCTION. NOT ALL SUCH PETROLEUM REFINERIES WERE CANVASSED IN THIS SURVEY.

(4) EXCLUDES AMOUNTS PRODUCED AND USED IN THE MANUFACTURE OF AMMONIA AND AMMONIA DERIVATIVES.

(5) IMPUTATION RATE EXCEEDS 25 PERCENT.

(6) DATA FOR OXYGEN (GAS), PRODUCED FOR CONSUMPTION IN THIS PLANT, COMBINED WITH DATA FOR OXYGEN (LIQUID) PRODUCED FOR CONSUMPTION IN THIS PLANT TO AVOID DISCLOSURE.

## DESCRIPTION OF SURVEY

The statistics in this publication were collected on Census monthly Form M28A.2, "Industrial Gases - Production," and represent complete coverage of the approximately 670 producers of elemental gases, carbon dioxide, and acetylene.

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## TRADING-DAY FACTORS

Variation in the rate of activity that arises from the existence of different numbers of trading days in the same month for different years can be an important cause of month-to-month irregular fluctuations. Unlike some other causes of irregular fluctuations such as unexpected economic developments, unusual weather, and statistical errors, trading-day irregularities can be approximately identified and removed so that the underlying trend-cycle stands out more clearly. Hence,

it is often possible to reduce the irregular factor by a trading-day adjustment.

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**Production**—Data shown for production represent total quantity of each chemical produced, including quantity consumed in plants, and for sale or transfer to other plants or warehouses of the same company. The statistics presented in the tables provide an up-to-date measure of activity in the inorganic field, but do not necessarily indicate amounts entering the market. In some cases, figures are included for material produced "in process" as an intermediate to the end products.

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# CURRENT INDUSTRIAL REPORTS

REFERENCE COPY

## Industrial Gases

October 1975



Issued December 1975

SERIES: M28C(75)-10

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TABLE 1A.--SEASONALLY ADJUSTED SUMMARY OF PRODUCTION OF PRINCIPAL GASES: 1973 TO 1975

Month and year	Acetylene (2813200)  (Mil. cu. ft.)	Carbon dioxide (2813311) and (2813331)  (Short tons)	Hydrogen, high and low purity (100%)  (Mil. cu. ft.)	Nitrogen, high and low purity (100%)  (Mil. cu. ft.)	Oxygen, high and low purity (100%)  (Mil. cu. ft.)
<b>1975</b>					
October.....	637	121,745	5,525	20,176	28,388
September.....	720	111,704	6,065	20,450	30,905
August.....	607	123,080	6,013	19,812	28,760
July.....	580	123,595	5,420	19,356	27,525
June.....	544	118,062	5,298	19,029	27,098
May.....	546	112,404	5,422	18,788	27,781
April.....	515	113,123	4,782	19,438	29,071
March.....	448	111,118	4,727	18,567	30,405
February.....	492	107,556	4,623	19,317	32,849
January.....	468	106,966	4,956	19,551	31,652
<b>1974</b>					
December.....	587	129,037	5,577	20,037	31,456
November.....	606	110,799	6,208	19,298	32,785
October.....	620	120,139	6,625	20,276	33,260
September.....	615	122,504	6,127	20,676	33,511
August.....	604	119,407	6,152	20,003	32,653
July.....	592	115,699	6,104	19,603	32,490
June.....	633	123,318	6,106	19,867	31,881
May.....	645	128,105	5,864	19,602	31,898
April.....	657	127,465	5,894	19,421	32,139
March.....	661	124,070	5,800	19,423	31,952
February.....	649	115,687	5,984	19,152	31,999
January.....	603	122,150	5,691	19,766	32,427
<b>1973</b>					
December.....	603	145,151	5,625	19,861	32,447
November.....	619	139,984	5,596	19,755	33,270
October.....	617	137,602	5,448	19,423	33,297

Inquiries concerning these figures should be addressed to the U.S. Department of Commerce, Bureau of the Census, Industry Division, Washington, D.C. 20233.

Bureau of the Census  
1975



U.S. DEPARTMENT OF COMMERCE Bureau of the Census

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TABLE 1B.--SUMMARY OF PRODUCTION OF PRINCIPAL GASES: 1973 TO 1975

Month and year	(Not seasonally adjusted)					
	Acetylene (2813200)	Carbon dioxide, liquid and gas (2813311)	Carbon dioxide, solid (2813331)	Hydrogen, high and low purity (100%)	Nitrogen, high and low purity (100%)	Oxygen, high and low purity (100%)
	(Mil. cu. ft.)	(Short tons)	(Short tons)	(Mil. cu. ft.)	(Mil. cu. ft.)	(Mil. cu. ft.)
1975						
October.....	683	107,874	24,907	5,774	20,539	29,297
September.....	<sup>x</sup> 728	<sup>x</sup> 101,935	<sup>x</sup> 25,428	<sup>x</sup> 5,967	20,245	29,854
August.....	592	109,353	28,719	5,857	<sup>x</sup> 19,971	27,558
July.....	<sup>x</sup> 567	102,731	30,017	5,485	19,453	26,895
June.....	<sup>x</sup> 539	99,649	27,366	5,214	18,688	27,014
May.....	537	90,671	24,608	5,541	19,350	29,067
April.....	501	87,855	21,667	4,772	19,165	29,595
March.....	422	84,090	21,277	4,559	19,364	32,199
February.....	477	77,998	17,390	4,416	18,282	30,763
January.....	483	77,932	21,279	4,981	19,785	32,095
1974						
December.....	604	90,787	21,802	5,644	19,887	31,958
November.....	637	86,509	19,838	6,059	18,949	32,359
October.....	667	95,555	30,154	6,578	20,702	34,086
September.....	613	101,868	28,649	5,980	20,305	32,595
August.....	594	98,400	32,742	5,981	20,183	31,632
July.....	571	94,503	32,771	6,233	19,819	31,810
June.....	615	99,803	29,014	5,960	19,550	31,467
May.....	646	107,657	27,420	6,004	20,071	33,142
April.....	638	98,961	24,445	5,882	19,148	32,718
March.....	628	90,420	22,020	5,956	20,238	33,382
February.....	631	83,124	16,484	5,699	18,126	30,062
January.....	626	87,021	22,309	5,719	20,043	32,684
1973						
December.....	665	91,608	22,035	5,801	19,733	33,329
November.....	663	91,829	23,990	5,647	19,215	33,035
October.....	663	102,479	28,636	5,909	19,953	34,092

Note: Beginning in January of 1975, the data are adjusted for report period variation. Comparable data are not available for previous years; however, the effect of this adjustment is considered to be negligible at the total level. See "Reporting Period Adjustment" in the text.

<sup>x</sup> Revised by 5 percent or more from previously published figures.

TABLE 2.--PRIMARY PRODUCTION OF SPECIFIED INDUSTRIAL GASES

PRODUCT CODE	CHEMICAL AND BASIS	UNIT OF MEASURE	OCTOBER 1975	SEPTEMBER 1975	OCTOBER 1974
			QUANTITY PRODUCED	QUANTITY PRODUCED	QUANTITY PRODUCED
2813200	ACETYLENE (1).....	MIL. CU. FT.	683	728	667
	PRODUCED FOR PIPELINE SHIPMENT (EXCLUDING THAT SHIPPED TO BE COMPRESSED).....	DO	204	241	297
	PRODUCED FOR COMPRESSION, INCLUDING CYLINDER AND PIPELINE.....	DO	252	253	148
	PRODUCED FOR CONSUMPTION IN THIS PLANT.....	DO	228	234	222
2813415	ARGON, HIGH PURITY.....	DO	380	371	420
	PRODUCED FOR CYLINDER AND BULK DELIVERY SHIPMENT.....	DO			
	PRODUCED FOR PIPELINE SHIPMENT.....	DO	380	371	420
	PRODUCED FOR CONSUMPTION IN THIS PLANT.....	DO			
2813311	CARBON DIOXIDE, LIQUID AND GAS (2).....	S. TONS	107,874	101,935	95,555
2813331	SOLID (DRY ICE).....	DO	24,907	25,428	20,154
2813420	HYDROGEN, TOTAL (3).....	MIL. CU. FT.	5,774	5,967	6,878
	PRODUCED FOR CYLINDER AND BULK DELIVERY SHIPMENT.....	DO			
	LIQUID PRODUCED FOR CONVERSION TO GAS.....	DO	694	537	703
	PRODUCED FOR PIPELINE SHIPMENT.....	DO	1,030	1,170	1,346
	LIQUID PRODUCED FOR GOVERNMENT USE.....	DO	4,050	4,260	4,529
	PRODUCED FOR CONSUMPTION IN THIS PLANT.....	DO			
2813440	NITROGEN, TOTAL (4).....	DO	20,539	20,245	20,702
	PRODUCED FOR CYLINDER AND BULK DELIVERY SHIPMENT.....	DO	33	32	250
	PRODUCED FOR PIPELINE SHIPMENT.....	DO	11,947	12,064	13,016
	PRODUCED FOR CONSUMPTION IN THIS PLANT.....	DO	1,560	1,744	1,585
	LIQUID: PRODUCED FOR CYLINDER AND BULK DELIVERY SHIPMENT.....	DO	6,250	5,674	5,635
	PRODUCED FOR BULK SHIPMENT TO PIPELINES OR TO OTHER AIR SEPARATION PLANTS.....	DO	583	535	703
	PRODUCED FOR CONSUMPTION IN THIS PLANT.....	DO	278	201	224
2813450	OXYGEN, TOTAL.....	DO	29,297	29,854	24,085
	PRODUCED FOR CYLINDER AND BULK DELIVERY SHIPMENT.....	DO	18	20	126
	PRODUCED FOR PIPELINE SHIPMENT.....	DO	20,404	20,605	20,100
	PRODUCED FOR CONSUMPTION IN THIS PLANT.....	DO	( <sup>5</sup> )	( <sup>6</sup> )	( <sup>5</sup> )
	LIQUID: PRODUCED FOR CYLINDER AND BULK DELIVERY SHIPMENT.....	DO	4,488	4,338	4,614
	PRODUCED FOR BULK SHIPMENT TO PIPELINES OR TO OTHER AIR SEPARATION PLANTS.....	DO	426	664	620
	PRODUCED FOR CONSUMPTION IN THIS PLANT.....	DO	<sup>5</sup> 5,869	<sup>4</sup> 4,229	<sup>3</sup> 3,362

<sup>1</sup> Revised by 5 percent or more from previously published figures.

<sup>2</sup> Excludes quantities of acetylene produced and consumed by railroad ships, shippers, and small establishments using portable generators.

<sup>3</sup> Excludes production of liquid and gas CO<sub>2</sub> converted to and reported as dry ice and also amounts converted from pure CO<sub>2</sub> (liquid or solid) purchased or received from other plants. Also excludes quantities produced and consumed in plants manufacturing soda ash or urea.

<sup>4</sup> Excludes quantities produced and consumed in the manufacture of methanol and ammonia, but includes an unspecified amount of hydrogen produced for sale or interplant transfer to plants consuming this gas in the production of ammonia. Also excludes amounts of hydrogen produced in petroleum refineries for captive use. However, of the total shown for lower purity hydrogen prior to 1969, 70 to 75 percent was accounted for by petroleum refiners with captive hydrogen production. Not all such petroleum refiners were covered in this survey.

<sup>5</sup> Excludes amounts produced and used in the manufacture of ammonia and ammonia derivatives.

<sup>6</sup> Deposition rate accounts 25 percent.  
<sup>7</sup> Data for oxygen (gas), produced for consumption in this plant, combined with data for oxygen (liquid) produced for consumption in this plant to avoid disclosure.

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# CURRENT INDUSTRIAL REPORTS

## Industrial Gases

November 1975



Issued January 1976

SERIES: M28C(75)-11

The statistics in this publication are based on a survey of manufacturers and represent U.S. production and stocks of industrial gases. Estimates are included for companies whose reports were not received in time for tabulation. A more complete description of the survey and the seasonal adjustment program appears on pages 4 and 5.

TABLE 1A.--SEASONALLY ADJUSTED SUMMARY OF PRODUCTION OF PRINCIPAL GASES: 1973 TO 1975

Month and year	Acetylene (2813200)  (Mil. cu. ft.)	Carbon dioxide (2813311) and (2813331)  (Short tons)	Hydrogen, high and low purity (100%)  (Mil. cu. ft.)	Nitrogen, high and low purity (100%)  (Mil. cu. ft.)	Oxygen, high and low purity (100%)  (Mil. cu. ft.)
<b>1975</b>					
November.....	<sup>r</sup> 564	110,256	<sup>r</sup> 5,288	20,729	28,704
October.....	<sup>r</sup> 515	118,356	<sup>r</sup> 5,873	20,075	28,118
September.....	<sup>r</sup> 581	111,704	6,065	20,450	30,905
August.....	607	123,080	6,013	19,812	28,760
July.....	580	123,595	5,420	19,356	27,525
June.....	544	118,062	5,298	19,029	27,098
May.....	546	112,404	5,422	18,878	27,781
April.....	515	113,123	4,782	19,438	29,071
March.....	448	111,118	4,727	18,567	30,405
February.....	492	107,556	4,623	19,317	32,849
January.....	468	106,966	4,956	19,551	31,652
<b>1974</b>					
December.....	587	129,037	5,577	20,037	31,456
November.....	608	110,799	6,208	19,298	32,785
October.....	620	120,139	6,625	20,276	33,260
September.....	615	122,504	6,127	20,676	33,511
August.....	604	119,407	6,152	20,003	32,653
July.....	592	115,699	6,104	19,603	32,490
June.....	633	123,318	6,106	19,867	31,881
May.....	645	128,105	5,864	19,602	31,898
April.....	657	127,465	5,894	19,421	32,139
March.....	661	124,070	5,800	19,423	31,952
February.....	649	115,687	5,984	19,152	31,999
January.....	603	122,150	5,691	19,766	32,427
<b>1973</b>					
December.....	603	145,151	5,625	19,861	32,447
November.....	619	139,984	5,596	19,755	33,270

<sup>r</sup>Revised by 5 percent or more from previously published figures.

Inquiries concerning these figures should be addressed to the U.S. Department of Commerce, Bureau of the Census, Industry Division, Washington, D.C. 20233.



U.S. DEPARTMENT OF COMMERCE Bureau of the Census

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TABLE 1B.--SUMMARY OF PRODUCTION OF PRINCIPAL GASES: 1973 TO 1975

(Not seasonally adjusted)

Month and year	Acetylene (2813200)  (Mil. cu. ft.)	Carbon dioxide, liquid and gas (2813311)  (Short tons)	Carbon dioxide, solid (2813331)  (Short tons)	Hydrogen, high and low purity (100%)  (Mil. cu. ft.)	Nitrogen, high and low purity (100%)  (Mil. cu. ft.)	Oxygen, high and low purity (100%)  (Mil. cu. ft.)
1975 <sup>1</sup>						
November.....	589	83,867	19,648	5,120	20,233	28,389
October.....	<sup>r</sup> 552	104,191	24,893	<sup>r</sup> 6,137	20,436	29,018
September.....	<sup>r</sup> 588	101,935	25,428	5,967	20,245	29,854
August.....	592	109,353	28,719	5,857	19,971	27,558
July.....	567	102,731	30,017	5,485	19,453	26,895
June.....	539	99,549	27,306	5,214	18,688	27,014
May.....	537	90,671	24,698	5,541	19,350	29,067
April.....	501	87,855	21,667	4,772	19,165	29,595
March.....	422	84,990	21,277	4,859	19,364	32,199
February.....	477	77,998	17,399	4,416	18,282	30,763
January.....	483	77,932	21,279	4,981	19,785	32,095
1974 <sup>1</sup>						
December.....	604	90,767	21,802	5,644	19,857	31,958
November.....	637	86,509	19,838	6,059	18,949	32,359
October.....	667	95,555	30,154	6,578	20,702	34,085
September.....	613	101,868	28,649	5,980	20,305	32,595
August.....	594	98,400	32,742	5,981	20,183	31,632
July.....	571	94,503	32,771	6,233	19,819	31,810
June.....	615	99,803	29,014	5,960	19,550	31,467
May.....	646	107,657	27,420	6,004	20,071	33,142
April.....	638	98,961	24,445	5,882	19,148	32,718
March.....	628	99,420	22,020	5,956	20,238	33,382
February.....	631	83,124	19,484	5,699	18,126	30,062
January.....	626	87,021	22,309	5,719	20,043	32,684
1973 <sup>1</sup>						
December.....	665	91,608	22,035	5,801	19,733	33,329
November.....	663	91,929	23,990	5,647	19,215	33,035

Note: Beginning in January of 1975, the data are adjusted for report period variation. Comparable data are not available for previous years; however, the effect of this adjustment is considered to be negligible at the total level. See "Reporting Period Adjustment" in the text.

<sup>r</sup>Revised by 5 percent or more from previously published figures.

<sup>1</sup>See text--relationship between M-28C and M-28C-14 Series for Industrial Gases.

TABLE 2.--PRIMARY PRODUCTION OF SPECIFIED INDUSTRIAL GASES

PRODUCT CODE	CHEMICAL AND BASIS	UNIT OF MEASURE	NOVEMBER 1975 QUANTITY PRODUCED	OCTOBER 1975 QUANTITY PRODUCED	NOVEMBER 1974 QUANTITY PRODUCED
2813200	ACETYLENE (1) . . . . .	MIL.CU.FT	589	<sup>x</sup> 552	637
	PRODUCED FOR PIPELINE SHIPMENT (EXCLUDING THAT SHIPPED TO BE COMPRESSED) . . . . .	DO	243	204	248
	PRODUCED FOR COMPRESSION, INCLUDING CYLINDER AND PIPELINE (2) . . . . .	DO		<sup>x</sup> 122	127
	PRODUCED FOR CONSUMPTION IN THIS PLANT. . . . .	DO	345	226	262
2813415	ARGON, HIGH PURITY . . . . .	DO	362	377	382
	PRODUCED FOR CYLINDER AND BULK DELIVERY SHIPMENT . . . . .	DO			
	PRODUCED FOR PIPELINE SHIPMENT. . . . .	DO	362	377	382
	PRODUCED FOR CONSUMPTION IN THIS PLANT. . . . .	DO			
2813311	CARBON DIOXIDE: LIQUID AND GAS (3) . . . . .	S.TONS	83,867	104,191	86,509
2813331	SOLID (DRY ICE) . . . . .	DO	19,648	24,893	20,937
2813420	HYDROGEN, TOTAL (4) . . . . .	MIL.CU.FT	5,120	<sup>x</sup> 6,137	6,059
	PRODUCED FOR CYLINDER AND BULK DELIVERY SHIPMENT . . . . .	DO			
	LIQUID PRODUCED FOR CONVERSION TO GAS . . . . .	DO	493	694	624
	PRODUCED FOR PIPELINE SHIPMENT. . . . .	DO			
	LIQUID PRODUCED FOR GOVERNMENT USE. . . . .	DO	1,063	1,005	1,277
	PRODUCED FOR CONSUMPTION IN THIS PLANT. . . . .	DO	3,564	<sup>x</sup> 4,438	4,158
2813440	NITROGEN, TOTAL (5) . . . . .	DO	20,283	20,436	18,949
	GAS: PRODUCED FOR CYLINDER AND BULK DELIVERY SHIPMENT. . . . .	DO			
	PRODUCED FOR PIPELINE SHIPMENT . . . . .	DO	12,353	11,667	10,924
	PRODUCED FOR CONSUMPTION IN THIS PLANT . . . . .	DO	1,524	1,667	1,592
	LIQUID: PRODUCED FOR CYLINDER AND BULK DELIVERY SHIPMENT. . . . .	DO	5,522	6,199	5,539
	PRODUCED FOR BULK SHIPMENT TO PIPELINES OR TO OTHER AIR SEPARATION PLANTS. . . . .	DO	589	605	643
	PRODUCED FOR CONSUMPTION IN THIS PLANT . . . . .	DO	245	276	251
2813450	OXYGEN, TOTAL. . . . .	DO	28,389	29,018	32,359
	GAS: PRODUCED FOR CYLINDER AND BULK DELIVERY SHIPMENT. . . . .	DO	19	19	157
	PRODUCED FOR PIPELINE SHIPMENT . . . . .	DO	19,555	20,586	23,570
	PRODUCED FOR CONSUMPTION IN THIS PLANT . . . . .	DO	<sup>6</sup> 4,022	<sup>6</sup> 3,498	<sup>6</sup> 3,260
	LIQUID: PRODUCED FOR CYLINDER AND BULK DELIVERY SHIPMENT. . . . .	DO	4,293	4,416	4,410
	PRODUCED FOR BULK SHIPMENT TO PIPELINES OR TO OTHER AIR SEPARATION PLANTS. . . . .	DO	500	499	962
	PRODUCED FOR CONSUMPTION IN THIS PLANT . . . . .	DO	( <sup>6</sup> )	( <sup>6</sup> )	( <sup>6</sup> )

<sup>x</sup>Revised by 5 percent or more from previously published figures.

<sup>1</sup>Excludes quantities of acetylene produced and consumed by railroad shops, shipyards, and small establishments using portable generators.

<sup>2</sup>Acetylene data for the month of September have been revised as follows: acetylene, total is 588 from 728 and produced for compression including cylinder and pipeline is 113 from 253.

<sup>3</sup>Excludes production of liquid and gas CO<sub>2</sub> converted to and reported as dry ice and also amounts converted from pure CO<sub>2</sub> (liquid or solid) purchased or received from other plants. Also excludes quantities produced and consumed in plants manufacturing soda ash or urea.

<sup>4</sup>Excludes quantities produced and consumed in the manufacture of methanol and ammonia, but includes an unspecified amount of hydrogen produced for sale or interplant transfer to plants consuming this gas in the production of ammonia. Also excludes amounts of hydrogen produced in petroleum refineries for captive use. However, of the total shown for lower purity hydrogen prior to 1969, 70 to 75 percent was accounted for by petroleum refineries with captive hydrogen production. Not all such petroleum refineries were canvassed in this survey.

<sup>5</sup>Excludes amounts produced and used in the manufacture of ammonia and ammonia derivatives.

<sup>6</sup>Data for oxygen (liquid), produced for consumption in this plant, combined with data for oxygen (gas) produced for consumption in this plant to avoid disclosure.

## DESCRIPTION OF SURVEY

The statistics in this publication were collected on Census monthly Form M28A.2, "Industrial Gases - Production," and represent complete coverage of the approximately 670 producers of elemental gases, carbon dioxide, and acetylene.

The current month's figures may include estimates for respondents whose reports were not received in time for tabulation. Such missing figures are imputed from the month-to-month movements shown by reporting firms and are generally limited to a maximum of 25 percent to any one item. Individual items with higher imputation rates are footnoted.

The imputation rate is not an explicit indicator of the potential error in published figures due to non-response, because the actual monthly movements for nonrespondents may or may not closely agree with the imputed movements. The probable range of difference between the actual and imputed figures is unknown. The degree of uncertainty regarding the accuracy of the data, however, increases as the percentage of imputation increases. Figures with high imputation rates, therefore, should be used with caution.

Statistics for previous months may be revised, due to receipt of corrected data from respondents, including late reports for which estimates were made, corrections. Figures which were revised significantly are indicated by footnotes.

## REPORTING PERIOD ADJUSTMENT

Beginning January 1975 the data were adjusted for number of working days in the reporting period to compensate for differences in individual company reporting patterns (i.e., calendar month, 4-week, 5-week periods). It has been determined that the calendar month accounting system prevails in the industry. Hence, adjustments have been made to those reporting on other than a calendar month basis.

## TRADING-DAY FACTORS

Variation in the rate of activity that arises from the existence of different numbers of trading days in the same month for different years can be an important cause of month-to-month irregular fluctuations. Unlike some other causes of irregular fluctuations such as unexpected economic developments, unusual weather, and statistical errors, trading-day irregularities can be approximately identified and removed so that the underlying trend-cycle stands out more clearly. Hence,

it is often possible to reduce the irregular factor by a trading-day adjustment.

## SEASONAL ADJUSTMENT

This report presents seasonally adjusted data for a number of the most important series published monthly in Current Industrial Reports M28A.2, "Industrial Gases." The seasonal adjustment program largely eliminates the effect of normal seasonal variation (including variations due to vacations, weather, etc.) as measured over the time period for which data were used. The resulting information thus provides a better measure than the original data of the month-to-month variations which are due to factors that are not associated with a repetitive seasonal pattern.

## RELATED REPORTS

Monthly Current Industrial Report, Inorganic Chemicals, Series M28A, includes production and stock data for specified inorganic chemicals. Monthly CIR report, Inorganic Fertilizer Materials and Related Products, Series M28B, includes production and stock data for ammonia and ammonia compounds, phosphatic fertilizers, and sulfuric acid.

An annual Current Industrial Report covering production and shipments of industrial gases is published in this series. The annual report includes more historical data and product detail than are shown in the monthly reports, and also includes detail by States for a number of industrial gases. The report is numbered M28A, Supplement.

## RELATIONSHIP BETWEEN M28C AND M28C-14 SERIES FOR INDUSTRIAL GASES

The data as shown in Table 1 reflect levels of production as reported by establishments on monthly from M28A.2. These data are revised in the annual publication collected on form MA-28E.2 and are shown in Table 9 of the annual report M28C-14. The actual data reported by establishments canvassed on the annual differ by varying amounts from those collected monthly due to receipt of revised data from the respondent and establishments reporting on the annual and not on the monthly. For these reasons, the monthly and annual data comprise two separate series and should be used as such for analytical purposes. Specifically, the monthly data should be useful in describing month-to-month changes while the annual

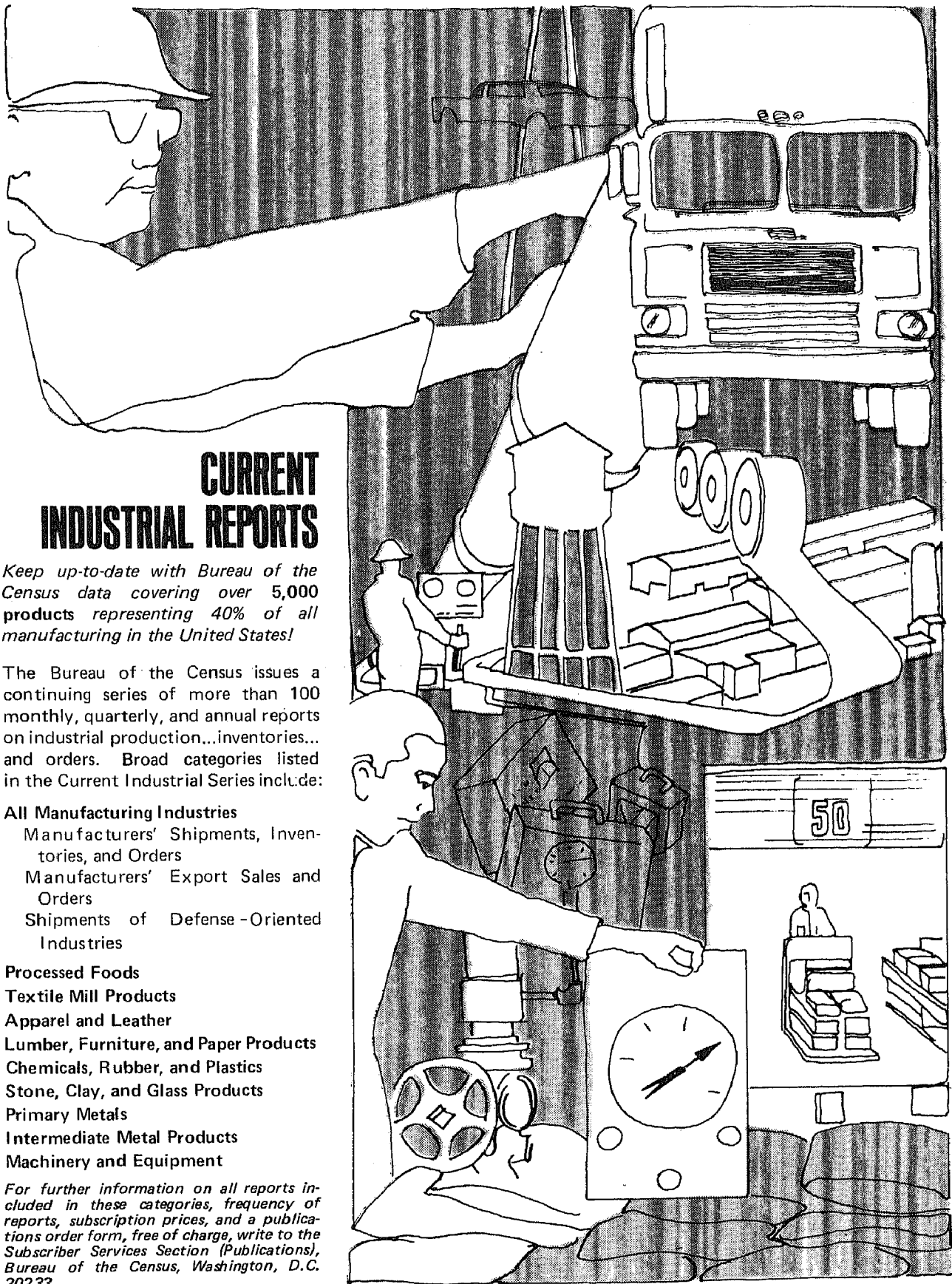
data provide a better indication of the level of production. Revisions to the 1975 monthly series based on findings from the 1974 annual will be forthcoming as soon as research into the differences are resolved.

#### EXPLANATION OF TERMS

**Production**—Data shown for production represent total quantity of each chemical produced, including quantity consumed in plants, and for sale or transfer to other plants or warehouses of the same company. The statistics presented in the tables provide an up-to-date

measure of activity in the inorganic field, but do not necessarily indicate amounts entering the market. In some cases, figures are included for material produced “in process” as an intermediate to the end products.

**Stocks**—Data shown for stocks represent quantities on hand, at the end of the month, at producing locations only, unless footnoted to indicate that the stock figure represents total stocks of producing companies including amounts held at locations other than producing plants.



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### **Chemicals, Rubber, and Plastics**

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# CURRENT INDUSTRIAL REPORTS

## Industrial Gases

December 1975



Issued February 1976

SERIES: M28C(75)-12

The statistics in this publication are based on a survey of manufacturers and represent U.S. production and stocks of industrial gases. Estimates are included for companies whose reports were not received in time for tabulation. A more complete description of the survey and the seasonal adjustment program appears on pages 4 and 5.

TABLE 1A.—SEASONALLY ADJUSTED SUMMARY OF PRODUCTION OF PRINCIPAL GASES: 1973 TO 1975

Month and year	Acetylene (2813200)  (Mil. cu. ft.)	Carbon dioxide (2813311) and (2813331)  (Short tons)	Hydrogen, high and low purity (100%)  (Mil. cu. ft.)	Nitrogen, high and low purity (100%)  (Mil. cu. ft.)	Oxygen, high and low purity (100%)  (Mil. cu. ft.)
<b>1975</b>					
December.....	616	123,456	6,226	21,533	27,846
November.....	565	109,204	5,563	20,447	28,704
October.....	515	118,356	5,873	20,075	28,118
September.....	581	111,704	6,065	20,450	30,905
August.....	607	123,080	6,013	19,812	28,760
July.....	580	123,585	5,420	19,356	27,525
June.....	544	118,062	5,298	19,029	27,098
May.....	546	112,404	5,422	18,878	27,781
April.....	515	113,123	4,782	19,438	29,071
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February.....	492	107,556	4,623	19,317	32,849
January.....	468	106,966	4,956	19,551	31,652
<b>1974</b>					
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November.....	606	110,799	6,208	19,288	32,785
October.....	620	120,139	6,625	20,276	33,260
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April.....	657	127,465	5,894	19,421	32,139
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Inquiries concerning these figures should be addressed to the U.S. Department of Commerce, Bureau of the Census, Industry Division, Washington, D.C. 20233.



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TABLE 1B.--SUMMARY OF PRODUCTION OF PRINCIPAL GASES: 1973 TO 1975

(Not seasonally adjusted)

Month and year	Acetylene (2813200)	Carbon dioxide, liquid and gas (2813311)	Carbon dioxide, solid (2813331)	Hydrogen, high and low purity (100%)	Nitrogen, high and low purity (100%)	Oxygen, high and low purity (100%)
	(Mil. cu. ft.)	(Short tons)	(Short tons)	(Mil. cu. ft.)	(Mil. cu. ft.)	(Mil. cu. ft.)
1975 <sup>1</sup>						
December.....	634	84,732	22,969	6,301	21,340	28,291
November.....	590	83,572	18,956	5,386	19,958	28,390
October.....	552	104,191	24,893	6,137	20,436	29,018
September.....	588	101,935	25,428	5,967	20,245	29,854
August.....	592	109,353	28,719	5,857	19,971	27,558
July.....	567	102,731	30,017	5,485	19,453	26,895
June.....	539	99,549	27,306	5,214	18,688	27,014
May.....	537	90,671	24,698	5,541	19,350	29,067
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February.....	477	77,998	17,399	4,416	18,282	30,763
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1974 <sup>1</sup>						
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November.....	637	86,509	19,838	6,059	18,949	32,359
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February.....	631	83,124	19,484	5,699	18,126	30,062
January.....	626	87,021	22,309	5,719	20,043	32,684
1973 <sup>1</sup>						
December.....	665	91,608	22,035	5,801	19,733	33,329

Note: Beginning in January of 1975, the data are adjusted for report period variation. Comparable data are not available for previous years; however, the effect of this adjustment is considered to be negligible at the total level. See "Reporting Period Adjustment" in the text.

<sup>1</sup>See text--relationship between M-28C and M-28C-14 Series for Industrial Gases.

TABLE 2.--PRIMARY PRODUCTION OF SPECIFIED INDUSTRIAL GASES

PRODUCT CODE	CHEMICAL AND BASIS	UNIT OF MEASURE	DECEMBER 1975 QUANTITY PRODUCED	NOVEMBER 1975 QUANTITY PRODUCED	DECEMBER 1974 QUANTITY PRODUCED
2813200	ACETYLENE (1) . . . . .	MIL.CU.FT	634	590	608
	PRODUCED FOR PIPELINE SHIPMENT (EXCLUDING THAT SHIPPED TO BE COMPRESSED) . . . . .	DO	255	244	265
	PRODUCED FOR COMPRESSION, INCLUDING CYLINDER AND PIPELINE (2) . . . . .	DO	379	346	125
	PRODUCED FOR CONSUMPTION IN THIS PLANT . . . . .	DO			218
2813415	ARGON, HIGH PURITY . . . . .	DO	339	365	405
	PRODUCED FOR CYLINDER AND BULK DELIVERY SHIPMENT . . . . .	DO	339	365	405
	PRODUCED FOR PIPELINE SHIPMENT . . . . .	DO			
	PRODUCED FOR CONSUMPTION IN THIS PLANT . . . . .	DO			
2813311	CARBON DIOXIDE:				
	LIQUID AND GAS (3) . . . . .	S.TONS	84,732	83,572	108,708
2813331	SOLID (DRY ICE) . . . . .	DO	22,969	18,956	24,391
2813420	HYDROGEN, TOTAL (4) . . . . .	MIL.CU.FT	6,301	5,386	5,878
	PRODUCED FOR CYLINDER AND BULK DELIVERY SHIPMENT . . . . .	DO	704	495	528
	LIQUID PRODUCED FOR CONVERSION TO GAS . . . . .	DO			
	PRODUCED FOR PIPELINE SHIPMENT . . . . .	DO	1,185	1,069	1,340
	LIQUID PRODUCED FOR GOVERNMENT USE . . . . .	DO			
	PRODUCED FOR CONSUMPTION IN THIS PLANT . . . . .	DO	4,412	3,822	4,010
2813440	NITROGEN, TOTAL (5) . . . . .	DO	21,340	19,958	20,101
	GAS:				
	PRODUCED FOR CYLINDER AND BULK DELIVERY SHIPMENT . . . . .	DO	12,830	11,893	41
	PRODUCED FOR PIPELINE SHIPMENT . . . . .	DO			11,766
	PRODUCED FOR CONSUMPTION IN THIS PLANT . . . . .	DO	1,890	1,541	1,805
	LIQUID:				
	PRODUCED FOR CYLINDER AND BULK DELIVERY SHIPMENT . . . . .	DO	5,608	5,703	5,749
	PRODUCED FOR BULK SHIPMENT TO PIPELINES OR TO OTHER AIR SEPARATION PLANTS . . . . .	DO	755	578	484
	PRODUCED FOR CONSUMPTION IN THIS PLANT . . . . .	DO	257	245	256
2813450	OXYGEN, TOTAL . . . . .	DO	28,291	28,390	32,063
	GAS:				
	PRODUCED FOR CYLINDER AND BULK DELIVERY SHIPMENT . . . . .	DO	22	19	34
	PRODUCED FOR PIPELINE SHIPMENT . . . . .	DO	19,648	19,427	22,311
	PRODUCED FOR CONSUMPTION IN THIS PLANT . . . . .	DO	<sup>5</sup> 4,095	<sup>5</sup> 4,011	<sup>5</sup> 4,214
	LIQUID:				
	PRODUCED FOR CYLINDER AND BULK DELIVERY SHIPMENT . . . . .	DO	3,902	4,444	4,770
	PRODUCED FOR BULK SHIPMENT TO PIPELINES OR TO OTHER AIR SEPARATION PLANTS . . . . .	DO	624	489	734
	PRODUCED FOR CONSUMPTION IN THIS PLANT . . . . .	DO	( <sup>6</sup> )	( <sup>6</sup> )	( <sup>6</sup> )

(NA) Not available.

<sup>1</sup>Revised by 5 percent or more from previously published figures.<sup>2</sup>Excludes quantities of acetylene produced and consumed by railroad shops, shipyards, and small establishments using portable generators.<sup>3</sup>Excludes production of liquid and gas CO<sub>2</sub> converted to and reported as dry ice and also amounts converted from pure CO<sub>2</sub> (liquid or solid) purchased or received from other plants. Also excludes quantities produced and consumed in plants manufacturing soda ash or urea.<sup>4</sup>Excludes quantities produced and consumed in the manufacture of methanol and ammonia, but includes an unspecified amount of hydrogen produced for sale or interplant transfer to plants consuming this gas in the production of ammonia. Also excludes amounts of hydrogen produced in petroleum refineries for captive use. However, of the total shown for lower purity hydrogen prior to 1969, 70 to 75 percent was accounted for by petroleum refiners with captive hydrogen production. Not all such petroleum refineries were canvassed in this survey.<sup>5</sup>Excludes amounts produced and used in the manufacture of ammonia and ammonia derivatives.<sup>6</sup>Data for oxygen (liquid), produced for consumption in this plant, combined with data for oxygen (gas) produced for consumption in this plant to avoid disclosure.

## DESCRIPTION OF SURVEY

The statistics in this publication were collected on Census monthly Form M28A.2, "Industrial Gases - Production," and represent complete coverage of the approximately 670 producers of elemental gases, carbon dioxide, and acetylene.

The current month's figures may include estimates for respondents whose reports were not received in time for tabulation. Such missing figures are imputed from the month-to-month movements shown by reporting firms and are generally limited to a maximum of 25 percent to any one item. Individual items with higher imputation rates are footnoted.

The imputation rate is not an explicit indicator of the potential error in published figures due to non-response, because the actual monthly movements for nonrespondents may or may not closely agree with the imputed movements. The probable range of difference between the actual and imputed figures is unknown. The degree of uncertainty regarding the accuracy of the data, however, increases as the percentage of imputation increases. Figures with high imputation rates, therefore, should be used with caution.

Statistics for previous months may be revised, due to receipt of corrected data from respondents, including late reports for which estimates were made, corrections. Figures which were revised significantly are indicated by footnotes.

## REPORTING PERIOD ADJUSTMENT

Beginning January 1975 the data were adjusted for number of working days in the reporting period to compensate for differences in individual company reporting patterns (i.e., calendar month, 4-week, 5-week periods). It has been determined that the calendar month accounting system prevails in the industry. Hence, adjustments have been made to those reporting on other than a calendar month basis.

## TRADING-DAY FACTORS

Variation in the rate of activity that arises from the existence of different numbers of trading days in the same month for different years can be an important cause of month-to-month irregular fluctuations. Unlike some other causes of irregular fluctuations such as unexpected economic developments, unusual weather, and statistical errors, trading-day irregularities can be approximately identified and removed so that the underlying trend-cycle stands out more clearly. Hence,

it is often possible to reduce the irregular factor by a trading-day adjustment.

## SEASONAL ADJUSTMENT

This report presents seasonally adjusted data for a number of the most important series published monthly in Current Industrial Reports M28A.2, "Industrial Gases." The seasonal adjustment program largely eliminates the effect of normal seasonal variation (including variations due to vacations, weather, etc.) as measured over the time period for which data were used. The resulting information thus provides a better measure than the original data of the month-to-month variations which are due to factors that are not associated with a repetitive seasonal pattern.

## RELATED REPORTS

Monthly Current Industrial Report, Inorganic Chemicals, Series M28A, includes production and stock data for specified inorganic chemicals. Monthly CIR report, Inorganic Fertilizer Materials and Related Products, Series M28B, includes production and stock data for ammonia and ammonia compounds, phosphatic fertilizers, and sulfuric acid.

An annual Current Industrial Report covering production and shipments of industrial gases is published in this series. The annual report includes more historical data and product detail than are shown in the monthly reports, and also includes detail by States for a number of industrial gases. The report is numbered M28A, Supplement.

## RELATIONSHIP BETWEEN M28C AND M28C-14 SERIES FOR INDUSTRIAL GASES

The data as shown in Table 1 reflect levels of production as reported by establishments on monthly from M28A.2. These data are revised in the annual publication collected on form MA-28E.2 and are shown in Table 9 of the annual report M28C-14. The actual data reported by establishments canvassed on the annual differ by varying amounts from those collected monthly due to receipt of revised data from the respondent and establishments reporting on the annual and not on the monthly. For these reasons, the monthly and annual data comprise two separate series and should be used as such for analytical purposes. Specifically, the monthly data should be useful in describing month-to-month changes while the annual

data provide a better indication of the level of production. Revisions to the 1975 monthly series based on findings from the 1974 annual will be forthcoming as soon as research into the differences are resolved.

#### EXPLANATION OF TERMS

**Production**—Data shown for production represent total quantity of each chemical produced, including quantity consumed in plants, and for sale or transfer to other plants or warehouses of the same company. The statistics presented in the tables provide an up-to-date

measure of activity in the inorganic field, but do not necessarily indicate amounts entering the market. In some cases, figures are included for material produced “in process” as an intermediate to the end products.

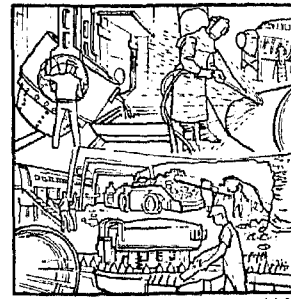
**Stocks**—Data shown for stocks represent quantities on hand, at the end of the month, at producing locations only, unless footnoted to indicate that the stock figure represents total stocks of producing companies including amounts held at locations other than producing plants.

# CURRENT INDUSTRIAL REPORTS

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## Industrial Gases

1975



M 28 C (75)-13 NOT Prepared

Issued August 1976

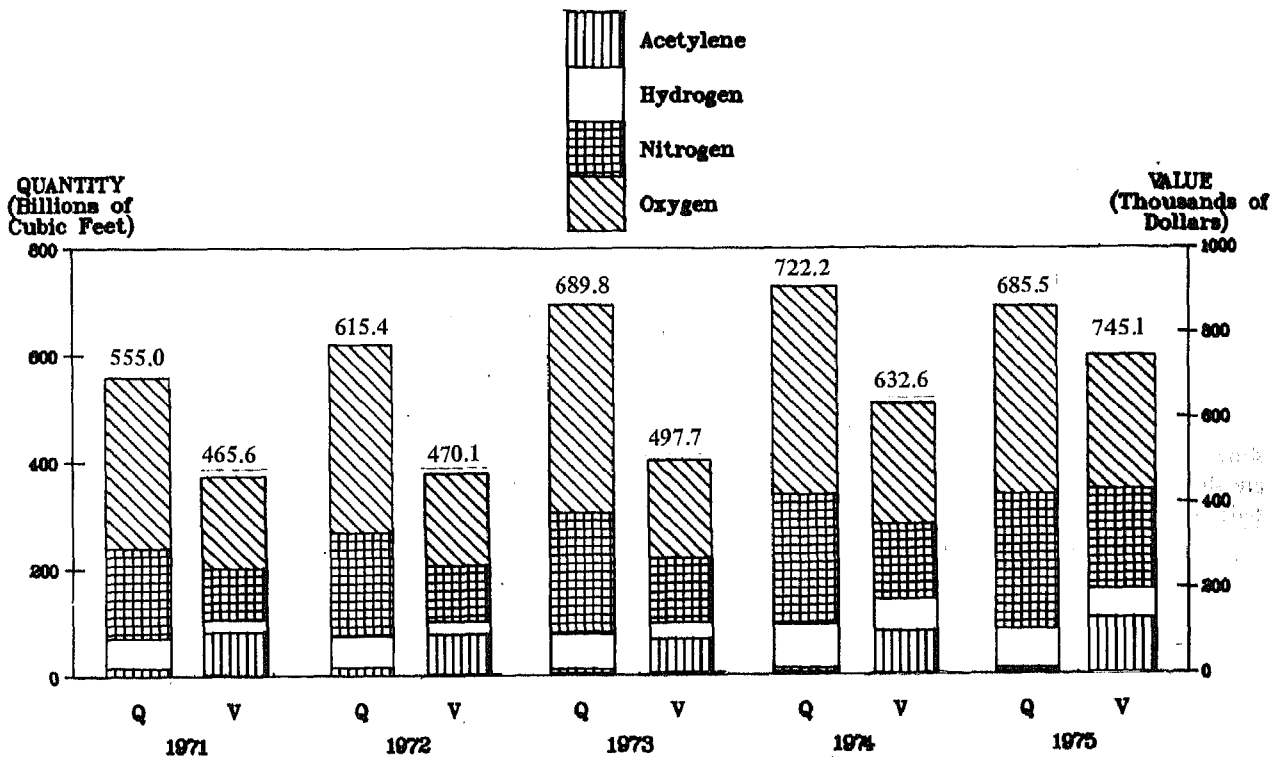
SERIES: M28C(75)-14

### SUMMARY OF FINDINGS

Shipments of industrial gases by primary manufacturers in 1975 totaled 908 million, or about 18 percent more than the 1974 figure of 769 million. The 1975 total is composed of \$129 million for acetylene;

\$66 million for carbon dioxide; and \$713 million for the product grouping elemental gases and other industrial gases, n.e.c. Compared with 1974, the 1975 totals showed a 30-percent increase for acetylene, an increase of 12 percent for carbon dioxide, and an increase of 17 percent for other elemental gases.

### QUANTITY AND VALUE OF SHIPMENTS OF SELECTED INDUSTRIAL GASES: 1971 TO 1975



Note: Carbon Dioxide is shown separately on page 3.

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Inquiries concerning these figures should be addressed to the U.S. Department of Commerce, Bureau of the Census, Industry Division, Washington, D.C. 20233 or call Melva Martin, (301) 763-7838.

U.S. Department of Commerce BUREAU OF THE CENSUS

For sale by the Subscriber Services Section (Publications), Bureau of the Census, Washington, D.C. 20233, or any U.S. Department of Commerce district office. Postage stamps not acceptable; currency submitted at sender's risk. Remittances from foreign countries must be by international money order or by a draft on a U.S. bank. Price: 25 cents per copy, \$3.50 per year.



## SCOPE OF SURVEY

Figures in this report exclude values for hydrocarbon gases, such as propane, butane and propylene, or halogenated hydrocarbons and cyclopropane, which are reported to the United States Tariff Commission, and for sulfur dioxide and chlorine, which are shown in the Current Industrial Reports Series M28A(74)-14, *Inorganic Chemicals and Gases*.

## DESCRIPTION OF SURVEY

The shipments values for some of the gases, particularly oxygen, reported by companies vary widely not only because of the conditions of sales, including delivery by pipeline or cylinder, but also because plant operations differ. The manufacturing and selling activities of some companies are centralized at the primary production site, while other companies sell or ship liquefied gases to other sites (filling stations or conversion units) where the products are changed in form, "packaged," and sold. The values reported for some sites thus include marketing activities and for other sites do not.

Figures showing the quantities shipped to other plants of the same company (interplant transfers) were not compiled separately and thus are unavailable. In evaluating these interplant transfers for inclusion in the totals, respondents were instructed to report values which would approximate the commercial selling value, f.o.b. plant, and not the cost of production or some other book price. The overall imputation rate for this survey is less than 5 percent.

In addition to the annual production statistics shown in table 2, monthly statistics for specified gases are shown in table 8. These monthly statistics supersede those which were released earlier in the monthly Current Industrial Reports, Series M28C, Industrial Gases, United States Production. Monthly and annual statistics have been issued beginning with January

1941. Geographic totals for specific gases are shown in tables 3 through 8. The geographic distribution of industrial gas plants by State is shown in table 10.

All figures included in this report are collected in thousand cubic feet, 70 F, at 1 atmosphere pressure, unless otherwise specified.

## HISTORICAL NOTES

Beginning in 1971, respondents were requested to report production either by specific methods of shipment or consumption in the producing plants for selected elemental gases and acetylene. Data for hydrogen, nitrogen, and oxygen include lower purity and high purity gas. Prior to 1971, lower purity gas was collected separately. Statistics for crude argon are collected separately. Special reporting instructions are also provided for carbon dioxide producers so that the chemical produced and shipped is reported only once, either in solid or liquid (including gaseous) form. Statistics exclude such activities as the liquefaction of purchased nitrogen. The quantities reported as produced exclude any information for gases used as fuel in producing plant, vented, or disposed of as waste. Other limitations of the statistics are indicated in footnotes appearing at the end of table 1.

Historical data may be obtained from *Current Industrial Reports* (called *Facts for Industry* before 1959), available at your local Federal Depository Library.

## ACKNOWLEDGMENTS

This report was prepared in the Industry Division, Bureau of the Census, under the direction of Robert J. Nealon, Chief, Current Nondurables Branch. John Ambler, assisted by Melva Martin, was directly responsible for the review of the data and preparation of the report. Milton Eisen, Chief of the Division, and James Werking, Assistant Chief for Current Programs, provided overall direction and coordination to this project.

**QUANTITY AND VALUE OF SHIPMENTS  
OF CARBON DIOXIDE: 1971 TO 1975**

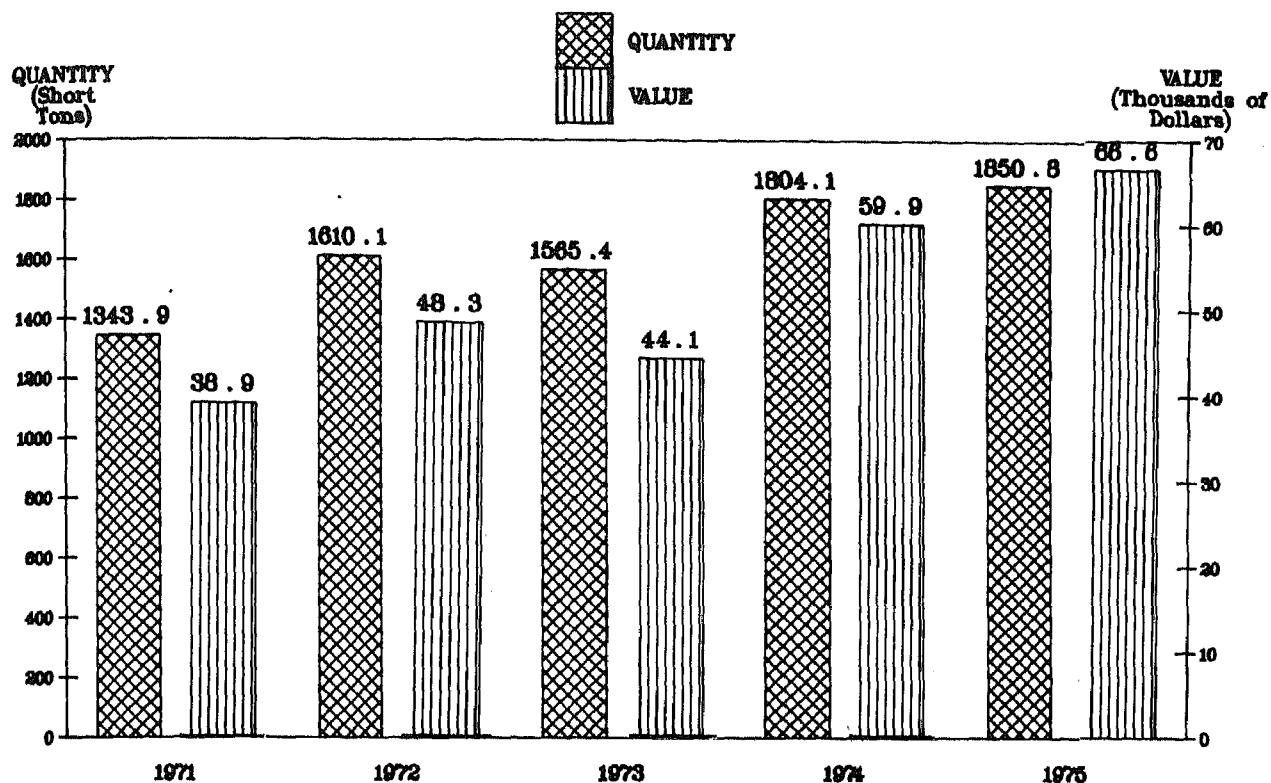


Table 1.--VALUE OF SHIPMENTS OF SELECTED INDUSTRIAL  
GASES: 1975-1974

Product code	Product	1975	1974	
			M28C	ASM
28132--	Acetylene.....	129.1	99.8	93.9
28133--	Carbon dioxide.....	66.6	59.9	56.9
28134--	Elemental compressed, liquefied gases, n.e.c.....	713.2	609.5	622.3

N.e.c.: Not elsewhere classified.

ASM: Annual Survey of Manufactures "Value of Product Shipments," 1974.

Table 2.--ANNUAL PRODUCTION AND SHIPMENTS OF INDUSTRIAL GASES: 1971 TO 1975

Code	Product	Unit of measure	Year	Quantity produced for all purposes	Total shipments including transfers quantity	Total shipments including transfers value (\$1,000)
2813--	Industrial gases, total.....		1975	(X)	(X)	1908,929
			1974	(X)	(X)	1769,395
			1973	(X)	(X)	631,225
			1972	(X)	(X)	1607,230
			1971	(X)	(X)	1584,673
28132--	Acetylene <sup>2</sup> .....	Mil.cu.ft.	1975	6,697	4,140	129,100
			1974	7,808	4,799	99,844
			1973	8,269	5,063	78,864
			1972	11,456	7,208	93,876
			1971	12,349	7,718	102,001
	Produced for pipeline shipment excluding that shipped to be compressed.....	...do....	1975	2,705	2,705	63,119
			1974	3,216	3,216	45,375
	Produced for compression, including cylinder and pipeline.....	...do....	1975	1,454	1,435	65,981
			1974	1,604	1,583	54,469
	Produced for consumption in this plant.....	...do....	1975	2,538	(X)	(X)
			1974	2,988	(X)	(X)
28133--	Carbon dioxide, total.....	Short tons	1975	1,850,973	1,750,933	66,633
			1974	1,804,251	1,674,116	59,966
			1973	1,565,506	1,449,265	44,178
			1972	1,610,251	1,500,523	48,375
			1971	1,344,026	1,235,442	38,963
2813311	Liquid and gas.....	...do....	1975	<sup>3</sup> 1,499,371	<sup>3</sup> 1,399,269	41,849
			1974	<sup>3</sup> 1,435,612	<sup>3</sup> 1,305,481	37,566
			1973	<sup>3</sup> 1,193,537	<sup>3</sup> 1,077,300	25,424
			1972	<sup>3</sup> 1,259,935	1,149,995	29,552
			1971	<sup>3</sup> 1,027,327	920,575	21,373
2813331	Solid (dry ice).....	...do....	1975	351,602	351,664	24,784
			1974	368,639	368,635	22,400
			1973	371,969	371,965	18,754
			1972	350,316	350,528	18,823
			1971	316,699	314,867	17,590
28134--	Elemental gases and other industrial gases, n.e.c., total.....		1975	(X)	(X)	713,196
			1974	(X)	(X)	609,585
			1973	(X)	(X)	508,183
			1972	(X)	(X)	464,979
			1971	(X)	(X)	443,709
2813415	Argon, high purity, total.....	Mil.cu.ft.	1975	4,457	4,457	65,129
			1974	4,688	4,688	47,380
			1973	4,325	4,325	35,032
			1972	3,795	3,798	32,493
			1971	3,048	3,042	27,641
	Produced for cylinder and bulk delivery shipment.....	...do....	1975	4,457	4,457	65,129
	Produced for pipeline shipment.....	...do....	1974	4,688	4,688	47,380
	Helium <sup>4</sup> .....	...do....	1975	(NA)	(NA)	(NA)
			1974	883	539	(NA)
			1973	3,205	497	(NA)
			1972	4,094	489	(NA)
			1971	4,560	447	(NA)
2813420	Hydrogen, total.....	...do....	1975	<sup>5</sup> 73,552	26,455	67,935
			1974	<sup>5</sup> 81,536	29,327	74,878
			1973	<sup>5</sup> 65,169	19,138	38,566
			1972	<sup>5</sup> 58,890	17,949	30,312
			1971	<sup>5</sup> 55,681	17,470	29,596
	Produced for cylinder and bulk delivery shipment.....	...do....	1975	6,882	6,882	45,771
	Liquid produced for conversion to gas.....	...do....	1974	<sup>7</sup> 7,455	7,455	53,200
	Produced for pipeline shipment.....	...do....	1975	20,780	19,573	22,164
	Liquid produced for government use.....	...do....	1974	<sup>7</sup> 21,860	21,872	21,678
	Produced for consumption in this plant.....	...do....	1975	45,890	(X)	(X)
			1974	52,221	(X)	(X)
2813440	Nitrogen, total <sup>6</sup> .....	...do....	1975	<sup>7</sup> 252,980	<sup>7</sup> 228,372	<sup>7</sup> 233,979
			1974	<sup>7</sup> 243,316	<sup>7</sup> 219,271	<sup>7</sup> 175,661
			1973	<sup>7</sup> 227,160	<sup>7</sup> 203,267	<sup>7</sup> 150,746
			1972	<sup>7</sup> 193,540	<sup>7</sup> 176,833	<sup>7</sup> 130,358
			1971	<sup>7</sup> 168,040	<sup>7</sup> 153,758	<sup>7</sup> 118,666
	Gas:					
	Produced for cylinder and bulk delivery shipment.....	...do....	1975	<sup>8</sup> ( <sup>8</sup> )	<sup>8</sup> ( <sup>8</sup> )	<sup>8</sup> ( <sup>8</sup> )
			1974	<sup>8</sup> 254	<sup>8</sup> 254	1,345
	Produced for pipeline shipment.....	...do....	1975	<sup>8</sup> 148,866	<sup>8</sup> 148,855	<sup>8</sup> 60,006
			1974	144,086	144,220	47,285
	Produced for consumption in this plant.....	...do....	1975	21,666	(X)	(X)
			1974	20,875	(X)	(X)

See footnotes at end of table.

Table 2.--ANNUAL PRODUCTION AND SHIPMENTS OF INDUSTRIAL GASES: 1971 TO 1975--Continued

Code	Product	Unit of measure	Year	Quantity produced for all purposes	Total shipments including transfers quantity	Total shipments including transfers value (\$1,000)
	Elemental gases and other industrial gases, n.e.c.--Continued					
	Nitrogen <sup>6</sup> --Continued					
	Liquid:					
	Produced for cylinder and bulk delivery shipment.....	Mil.cu.ft.	1975	73,592	73,528	166,204
			1974	70,204	69,930	122,212
	Produced for bulk shipment to pipelines or to other air separation plants.....	...do....	1975	5,951	5,959	7,769
			1974	4,865	4,867	4,819
	Produced for consumption in this plant.....	...do....	1975	2,905	(X)	(X)
			1974	3,032		
2813450	Oxygen, total <sup>6</sup> .....	...do....	1975	7352,560	7306,295	7314,294
			1974	7389,628	7337,032	7282,421
			1973	7389,436	7331,327	7229,730
			1972	7351,733	7300,263	7215,724
			1971	7319,171	7268,882	7215,515
	Gas:					
	Produced for cylinder and bulk delivery shipment.....	...do....	1975	224	190	3,836
			1974	405	426	4,433
	Produced for pipeline shipments.....	...do....	1975	245,259	246,282	156,267
			1974	274,654	273,891	148,575
	Produced for consumption in this plant.....	...do....	1975	947,299	(X)	(X)
			1974	951,979	(X)	(X)
	Liquid:					
	Produced for cylinder and bulk delivery shipments.....	...do....	1975	51,835	51,880	142,125
			1974	52,109	52,234	116,194
	Produced for bulk shipment to pipeline or to other air separation plants.....	...do....	1975	7,943	7,943	12,066
			1974	10,481	10,481	13,219
	Produced for consumption in this plant.....	...do....	1975	( <sup>9</sup> )	(X)	(X)
			1974	( <sup>9</sup> )	(X)	(X)
2813471	Nitrous oxide.....	1,000 gals (STP)	1975	1,639,298	1,639,298	8,230
			1974	1,628,271	1,628,271	5,874
			1973	1,281,590	1,281,590	4,659
			1972	1,278,285	1,278,285	4,500
			1971	1,121,366	1,121,366	4,057
2813498	Other industrial gases, n.e.c., including crude argon, carbon dioxide produced and transferred for further processing, and crude and high purity helium produced in privately owned plants <sup>10</sup> .....	.....	1975	(X)	(X)	23,629
			1974	(X)	(X)	23,371
			1973	(X)	(X)	49,450
			1972	(X)	(X)	56,692
			1971	(X)	(X)	48,234

(NA) Not available. n.e.c. Not elsewhere classified. <sup>7</sup>Revised. (X) Not applicable.<sup>1</sup>Excludes value for helium produced in government owned plants.<sup>2</sup>Excludes information from railroad ships, shipyards, welding shops, and small establishments using portable generators.<sup>3</sup>Excludes production of liquid and gas carbon dioxide converted to and reported as dry ice and also amounts converted from pure carbon dioxide (liquid or solid) purchased or received from other plants. Also excludes quantities produced and consumed in plants manufacturing soda ash or urea, and quantities produced and transferred to other plants where it is further processed.<sup>4</sup>Source: U.S. Department of Interior, Bureau of Mines.<sup>5</sup>Excludes amounts vented, used as fuel, etc., and amounts produced and consumed in the manufacture of synthetic ammonia and methanol, but includes an unspecified amount produced for sale or interplant transfer to plants consuming this gas in the production of ammonia. Also excludes amounts produced by the ammonia dissociation process (cracking of ammonia). Also excludes amounts produced in petroleum refineries for captive use. However, of the total shown for lower purity hydrogen prior to 1969, 70 to 75 percent was accounted for by petroleum refiners with captive hydrogen production. Not all such petroleum refineries were canvassed in this survey.<sup>6</sup>Excludes amounts produced and consumed in the manufacture of synthetic ammonia or ammonia derivatives.<sup>7</sup>Data for 1973 and 1972 include figures for high and lower purity gas. Prior to 1971, data only included figures for high purity gas.<sup>8</sup>1975 data for nitrogen (gas), produced for cylinder and bulk delivery shipment combined with produced for pipeline shipment to avoid disclosing figures for individual companies.<sup>9</sup>Data for oxygen (liquid), produced for consumption in this plant, combined with data for oxygen (gas), produced for consumption in this plant, to avoid disclosing figures for individual companies.<sup>10</sup>Excludes hydrocarbon gases such as propane, butane, and propylene, or halogenated hydrocarbons and cyclopropane, which are reported to the U.S. Tariff Commission. Also excludes sulfur dioxide and chlorine, figures for which are shown in Current Industrial Reports Series M28A (73)-14, Inorganic Chemicals and Gases.

Table 3.--PRODUCTION AND SHIPMENTS OF ACETYLENE, BY GEOGRAPHIC AREA: 1975

Production	Production (mil. cu. ft.)	Total shipments including interplant transfers	
		Quantity (mil. cu. ft.)	Value (\$1,000)
UNITED STATES, TOTAL <sup>1</sup> .....	6,697	4,140	129,100
Northeast Region and North Central Region....	812	683	30,019
South Region.....	5,603	3,171	85,530
Mountain Division.....	98	93	4,352
Pacific Division.....	184	193	9,199

<sup>1</sup>See table 10 for the number of establishments reporting production by State.

Table 4.--PRODUCTION AND SHIPMENTS OF CARBON DIOXIDE, BY DIVISIONS: 1975

Division	Total liquid and solid			Liquid and gas			Solid (dry ice)		
	Production	Shipments		Production	Shipments		Production	Shipments	
		Quantity (short tons)	Value (\$1,000)		Quantity (short tons)	Value (\$1,000)		Quantity (short tons)	Value (\$1,000)
UNITED STATES, TOTAL <sup>1</sup> .....	1,850,973	1,750,933	66,633	1,499,371	1,399,269	41,849	351,602	351,664	24,784
New England and Middle Atlantic.....	111,788	111,815	8,009	50,482	50,447	1,160	61,306	61,368	6,849
East North Central.....	339,465	318,430	10,296	261,710	240,675	5,159	77,755	77,755	5,137
West North Central.....	221,521	217,408	8,297	183,807	179,694	5,643	37,714	37,714	2,654
South Atlantic and East South Central.....	551,333	512,031	21,479	499,685	460,383	17,881	51,648	51,648	3,598
West South Central.....	348,995	320,593	11,068	319,609	291,207	8,733	29,386	29,386	2,335
Mountain.....	70,525	70,525	2,043	34,768	34,768	985	35,757	35,757	1,058
Pacific.....	207,346	200,131	5,441	149,310	142,095	2,268	58,036	58,036	3,153

<sup>1</sup>See table 10 for the number of establishments reporting production by State.

Table 5.--SHIPMENTS OF ARGON (HIGH PURITY) BY GEOGRAPHIC AREA: 1975

Geographic area	Total shipments including interplant transfers	
	Quantity (mil. cu. ft.)	Value (\$1,000)
UNITED STATES, TOTAL <sup>1</sup> .....	4,457	65,129
Northeast Region.....	828	11,822
East North Central Division.....	1,668	21,352
Ohio.....	595	7,759
South Atlantic Division.....	540	10,107
East South Central Division.....	184	3,634
West South Central Division.....	499	7,802
West Region.....	738	10,412
California.....	500	6,548

<sup>1</sup>See table 10 for the number of establishments reporting production by State.

Table 6.--PRODUCTION AND SHIPMENTS OF HYDROGEN (TOTAL) BY GEOGRAPHIC AREA: 1975

Geographic area	Production (mil. cu. ft.)	Total shipments including interplant transfers	
		Quantity (mil. cu. ft.)	Value (\$1,000)
UNITED STATES, TOTAL <sup>1</sup> .....	73,552	26,455	67,935
Northeast Region.....	4,208	2,380	9,943
North Central Region.....	6,095	2,761	7,859
South Region and West Region.....	63,249	21,314	50,133
East South Central Division.....	4,448	1,652	2,734
West South Central Division.....	47,112	13,252	30,237

<sup>1</sup>See table 10 for the number of establishments reporting production by State.

Table 7.--PRODUCTION AND SHIPMENTS OF NITROGEN (TOTAL) BY GEOGRAPHIC AREA: 1975

Geographic area	Production (mil. cu. ft.)	Total shipments including interplant transfers	
		Quantity (mil. cu. ft.)	Value (\$1,000)
UNITED STATES, TOTAL <sup>1</sup> .....	252,980	228,372	233,979
New England Division.....	5,191	5,100	10,352
Middle Atlantic Division.....	27,146	25,591	38,216
New York.....	3,920	3,365	5,694
New Jersey.....	9,889	9,884	15,536
Pennsylvania.....	13,337	12,342	16,986
North Central Region.....	50,948	49,844	48,772
Ohio.....	11,722	11,329	14,296
Illinois.....	7,372	7,173	11,347
South Atlantic Division.....	37,046	30,008	25,936
West Virginia.....	16,389	9,392	6,199
East South Central Division.....	22,023	19,641	20,771
Tennessee.....	5,970	4,258	4,456
Alabama.....	13,079	13,068	14,780
West South Central Division.....	82,697	71,959	47,973
Texas.....	64,715	57,650	31,001
Mountain Division.....	3,573	3,573	7,078
Utah.....	410	410	1,033
Pacific Division.....	24,356	22,656	34,881
California.....	22,417	21,597	31,568

<sup>1</sup>See table 10 for the number of establishments reporting production by State.

Table 8.--PRODUCTION AND SHIPMENTS OF OXYGEN (TOTAL) BY GEOGRAPHIC AREAS: 1975

Geographic area	Production (mil. cu. ft.)	Total shipments including interplant transfers	
		Quantity (mil. cu. ft.)	Value (\$1,000)
UNITED STATES, TOTAL <sup>1</sup> .....	352,560	306,295	314,294
New England Division.....	1,736	1,718	5,305
Middle Atlantic Division.....	56,166	55,114	56,556
New York.....	11,046	10,995	11,286
New Jersey.....	2,545	2,543	7,059
Pennsylvania.....	42,575	41,576	38,211
North Central Region.....	136,801	121,806	110,084
Ohio.....	37,701	37,701	30,679
Michigan.....	20,155	11,376	10,974
South Atlantic Region.....	37,307	37,107	38,910
West Virginia.....	21,163	21,079	22,633
Florida.....	1,251	1,240	2,156
East South Central Division.....	26,922	26,856	26,914
Alabama.....	12,934	12,939	14,463
West South Central Division.....	70,068	40,530	41,278
Texas.....	47,644	31,478	27,533
Mountain Division.....	7,604	7,279	7,830
Utah.....	3,400	3,077	2,621
Pacific Division.....	15,956	15,885	27,417
California.....	14,310	14,240	18,189

<sup>1</sup>See table 10 for number of establishments reporting production by State.

Table 9. --PRIMARY PRODUCTION OF SPECIFIED INDUSTRIAL GASES, BY MONTHS: 1975 AND 1974

Code	Product	Unit of measure	Year	Total	January	February	March	April	May	June	July	August	September	October	November	December
2813200	Acetylene.....	mil cu.ft.	1975	6,697	492	526	431	509	548	551	580	606	640	563	603	648
			1974	7,808	656	664	659	669	677	647	602	624	639	694	669	608
	Produced for pipeline shipment, excluding that produced to be compressed	.....do.....	1975	2,705	200	200	179	177	211	234	244	259	255	216	259	271
	Produced for compression, including cylinder and pipeline.....	.....do.....	1974	3,216	232	262	291	278	284	258	240	273	271	304	258	265
2813415	Produced for consumption in this plant.....	.....do.....	1975	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )
			1974	1,604	144	133	140	142	138	124	120	126	128	151	131	125
	Produced for consumption in this plant.....	.....do.....	1975	3,992	292	326	252	332	337	317	336	347	385	347	344	377
	Argon, high purity, total.....	.....do.....	1974	4,457	372	360	426	401	359	336	373	343	380	386	373	348
2813311	Produced for cylinder and bulk delivery shipment.....	.....do.....	1975	4,457	372	360	426	401	359	336	373	343	380	386	373	348
			1974	4,688	367	385	402	397	401	380	365	385	398	418	385	405
	Carbon dioxide, total.....	Short tons	1975	1,850,373	132,289	122,141	141,885	146,262	153,839	169,136	176,816	184,216	170,060	172,466	137,085	144,778
			1974	1,804,251	139,811	129,613	149,017	150,195	162,401	155,517	159,836	161,581	161,381	158,624	140,240	136,035
2813331	Liquid and gas.....	.....do.....	1975	1,499,371	105,978	100,628	115,576	119,472	123,301	135,374	139,701	148,706	138,619	141,687	113,647	116,682
			1974	1,435,612	112,764	105,405	122,767	120,999	130,023	121,539	121,230	123,834	127,775	123,495	114,436	111,345
	Solid (dry ice).....	.....do.....	1975	351,602	26,311	21,513	26,309	26,790	30,538	33,762	37,115	35,510	31,441	30,779	23,438	28,096
			1974	368,639	27,047	24,208	26,250	29,196	32,378	33,978	38,606	37,747	33,606	35,129	25,804	24,690
2813420	Hydrogen, total.....	mil cu.ft.	1975	73,552	5,712	5,074	5,550	5,356	6,306	5,890	6,209	6,633	6,759	6,879	6,085	7,099
			1974	81,536	6,601	6,604	6,776	6,784	6,917	6,862	7,163	6,595	6,686	7,341	6,796	6,411
	Produced for cylinder and bulk delivery shipment.....	.....do.....	1975	6,882	597	486	636	527	558	547	541	522	547	706	504	711
	Liquid produced for conversion to gas.....	.....do.....	1974	7,455	514	483	563	638	662	608	637	598	597	812	722	621
2813440	Produced for pipeline shipment.....	.....do.....	1975	20,780	1,773	1,603	1,674	1,402	1,856	1,633	1,751	1,878	1,920	1,650	1,755	1,885
			1974	21,860	1,736	1,837	1,750	1,899	1,841	1,784	1,946	1,711	1,823	1,923	1,830	1,780
	Liquid produced for government use.....	.....do.....	1975	45,890	3,342	2,985	3,240	3,427	3,892	3,710	3,917	4,233	4,296	4,523	3,826	4,503
	Produced for consumption in this plant.....	.....do.....	1974	52,221	4,351	4,284	4,463	4,247	4,414	4,470	4,580	4,286	4,266	4,606	4,244	4,010
2813440	Nitrogen, total.....	.....do.....	1975	252,980	21,101	19,487	20,665	20,436	20,746	19,990	20,892	21,452	21,765	21,968	21,443	23,035
			1974	243,589	20,486	18,706	20,632	19,555	20,461	20,073	20,727	20,927	20,801	21,380	19,742	20,099
	Gas:															
	Produced for cylinder and bulk delivery shipment.....	.....do.....	1975	r( <sup>1</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )
			1974	254	22	22	23	23	22	24	18	18	20	20	21	21
2813440	Produced for pipeline shipment.....	.....do.....	1975	2148,866	12,494	11,737	11,865	11,759	12,054	11,561	12,124	12,540	13,030	12,654	12,870	13,968
			1974	144,086	12,432	11,196	12,157	11,674	12,176	11,897	12,280	11,978	12,293	12,782	11,455	11,766
	Produced for consumption in this plant.....	.....do.....	1975	21,666	1,773	1,606	1,886	1,765	1,945	1,850	1,834	1,849	1,821	1,761	1,609	1,987
			1974	20,875	1,779	1,714	1,796	1,623	1,610	1,669	1,701	1,891	1,748	1,766	1,773	1,805

Table 9. --PRIMARY PRODUCTION OF SPECIFIED INDUSTRIAL GASES, BY MONTHS: 1975 AND 1974--Continued

Code	Product	Unit of Measure	Year	Total	January	February	March	April	May	June	July	August	September	October	November	December
2813450	Nitrogen--Continued															
	Liquid:															
	Produced for cylinder and bulk delivery.....	mil.cu.ft.	1975	73,592	5,844	5,400	6,078	6,118	6,174	5,891	6,194	6,339	6,255	6,833	6,287	6,179
	Produced for bulk shipment to pipelines or to other air separation plants.....	.....do.....	1974	70,204	5,625	5,196	6,046	5,622	5,976	5,829	6,029	6,326	6,069	6,022	5,715	5,749
	Produced for consumption in this plant.....	.....do.....	1975	8,856	790	744	836	794	573	688	740	724	659	730	677	901
			1974	4,865	323	301	300	342	401	358	410	449	414	560	523	484
			1975	( <sup>3</sup> )	( <sup>3</sup> )	( <sup>3</sup> )	( <sup>3</sup> )	( <sup>3</sup> )	( <sup>3</sup> )	( <sup>3</sup> )	( <sup>3</sup> )	( <sup>3</sup> )	( <sup>3</sup> )	( <sup>3</sup> )	( <sup>3</sup> )	( <sup>3</sup> )
			1974	3,032	280	252	286	247	251	268	267	243	236	209	237	256
	Oxygen, total.....	.....do.....	1975	352,560	32,166	30,847	32,276	29,726	29,175	27,162	27,087	27,716	30,061	29,196	28,618	28,530
			1974	389,628	32,918	30,312	33,449	32,503	33,026	31,624	32,048	32,167	32,759	34,148	32,611	32,063
	Gas:															
	Produced for cylinder and bulk delivery shipment.....	.....do.....	1975	224	23	22	22	21	25	25	14	14	14	14	14	16
			1974	405	29	29	29	29	30	38	37	38	37	38	37	34
	Produced for pipeline shipment.....	.....do.....	1975	245,259	23,413	22,463	23,489	20,986	20,510	18,347	18,138	18,937	20,278	20,261	19,121	19,316
			1974	214,654	23,431	21,003	23,596	23,031	23,037	22,357	23,082	22,746	23,126	24,157	22,777	22,311
	Produced for consumption in this plant.....	.....do.....	1975	147,299	3,692	3,318	3,371	3,655	3,466	4,166	4,297	4,457	4,489	3,713	4,257	4,418
			1974	51,979	4,326	4,357	4,448	4,392	4,504	4,245	4,253	4,200	4,341	4,415	4,284	4,214
	Liquid:															
	Produced for cylinder and bulk delivery shipment.....	.....do.....	1975	51,835	4,218	4,388	4,595	4,514	4,331	3,794	4,034	3,643	4,648	4,732	4,761	4,177
			1974	52,109	4,337	4,041	4,413	4,181	4,475	4,132	3,912	4,353	4,312	4,623	4,560	4,770
	Produced for bulk shipment to pipelines or to other air separation plants.....	.....do.....	1975	7,943	820	656	799	550	843	830	604	665	632	476	465	603
			1974	10,481	795	882	963	870	990	846	764	826	943	915	953	734
	Produced for consumption in this plant.....	.....do.....	1975	( <sup>4</sup> )	( <sup>4</sup> )	( <sup>4</sup> )	( <sup>4</sup> )	( <sup>4</sup> )	( <sup>4</sup> )	( <sup>4</sup> )	( <sup>4</sup> )	( <sup>4</sup> )	( <sup>4</sup> )	( <sup>4</sup> )	( <sup>4</sup> )	( <sup>4</sup> )
			1974	( <sup>4</sup> )	( <sup>4</sup> )	( <sup>4</sup> )	( <sup>4</sup> )	( <sup>4</sup> )	( <sup>4</sup> )	( <sup>4</sup> )	( <sup>4</sup> )	( <sup>4</sup> )	( <sup>4</sup> )	( <sup>4</sup> )	( <sup>4</sup> )	( <sup>4</sup> )

F Revised.

1975 data for acetylene, produced for compression including cylinder and pipeline, combined with produced for consumption in this plant, to avoid disclosing figures for individual companies.

21975 data for nitrogen (gas), produced for cylinder and bulk delivery shipment combined with produced for pipeline shipment, to avoid disclosing figures for individual companies.

31975 data for nitrogen (liquid), produced for consumption in this plant, combined with produced for bulk shipment to pipelines or to other air separation plants, to avoid disclosing figures for individual companies.

\*Data for oxygen (liquid), produced for consumption in this plant, combined with data for oxygen (gas), produced for consumption in this plant, to avoid disclosing figures for individual companies.

Table 10.--NUMBER OF ESTABLISHMENTS REPORTING THE PRODUCTION OF SELECTED INDUSTRIAL GASES, BY STATE: 1975

State	Acetylene 2813200	Carbon dioxide			Argon (refined) 2813415	Hydrogen 2813420	Nitrogen 2813440	Oxygen 2813450	Nitrous oxide 2813471
		Total <sup>1</sup> 28133	Liquid or gas <sup>2</sup> 2813311	Solid 2813331					
UNITED STATES, TOTAL.....	211	72	52	42	69	134	258	181	7
New England.....	5	1	-	1	2	4	12	5	-
Maine.....	-	-	-	-	-	1	1	1	-
New Hampshire.....	-	-	-	-	-	-	-	-	-
Vermont.....	-	-	-	-	-	-	1	-	-
Massachusetts.....	3	1	-	1	1	1	5	3	-
Rhode Island.....	1	-	-	-	-	-	1	-	-
Connecticut.....	1	-	-	-	1	2	4	1	-
Middle Atlantic.....	22	4	2	3	9	18	39	31	-
New York.....	5	1	1	-	1	3	9	4	-
New Jersey.....	5	2	-	2	2	7	8	4	-
Pennsylvania.....	12	1	1	1	6	4	22	23	-
East North Central.....	37	7	5	5	16	32	48	39	1
Ohio.....	14	2	2	2	6	8	19	18	1
Indiana.....	7	1	1	-	3	2	6	4	-
Illinois.....	6	3	1	3	3	15	13	10	-
Michigan.....	6	-	-	-	3	7	8	6	-
Wisconsin.....	4	1	1	-	1	-	2	1	-
West North Central.....	17	10	7	7	-	4	15	6	1
Minnesota.....	3	2	1	1	-	-	3	2	-
Iowa.....	4	4	3	3	-	-	1	-	-
Missouri.....	2	1	-	1	-	2	7	3	-
North Dakota.....	-	-	-	-	-	-	-	-	-
South Dakota.....	3	-	-	-	-	-	1	1	-
Nebraska.....	1	-	-	-	-	1	-	-	-
Kansas.....	4	3	3	2	-	1	2	-	1
South Atlantic.....	27	10	7	6	7	16	37	17	1
Delaware.....	-	1	1	-	1	5	2	2	-
Maryland.....	2	-	-	-	1	-	5	2	-
District of Columbia.....	-	-	-	-	-	-	-	-	-
Virginia.....	3	1	1	1	1	2	2	2	1
West Virginia.....	4	1	1	1	2	4	11	5	-
North Carolina.....	4	1	1	-	-	1	5	2	-
South Carolina.....	1	-	-	-	-	-	4	1	-
Georgia.....	4	2	1	1	1	2	3	1	-
Florida.....	9	4	2	3	1	3	5	2	-
East South Central.....	15	5	4	1	5	19	24	19	2
Kentucky.....	2	1	1	-	-	5	6	4	-
Tennessee.....	7	4	3	1	3	9	9	6	1
Alabama.....	4	-	-	-	2	4	8	8	-
Mississippi.....	2	-	-	-	-	1	1	1	1
West South Central.....	43	17	12	5	14	28	43	34	-
Arkansas.....	2	1	1	-	1	-	1	1	-
Louisiana.....	8	3	2	1	3	8	15	10	-
Oklahoma.....	4	-	-	-	1	1	3	2	-
Texas.....	29	13	9	4	9	19	24	21	-
Mountain.....	20	6	5	6	2	2	13	11	-
Montana.....	3	-	-	-	-	-	-	1	-
Idaho.....	2	-	-	-	-	-	1	1	-
Wyoming.....	1	-	-	-	-	-	-	-	-
Colorado.....	4	2	1	2	1	1	4	3	-
New Mexico.....	2	2	2	2	-	-	1	1	-
Arizona.....	3	-	-	-	-	-	4	2	-
Utah.....	3	2	2	2	1	1	3	3	-
Nevada.....	2	-	-	-	-	-	-	-	-
Pacific.....	25	12	10	8	14	15	27	19	2
Washington.....	4	2	2	2	2	2	4	3	-
Oregon.....	4	-	-	-	1	1	1	1	-
California.....	14	6	4	5	11	9	19	14	2
Alaska.....	1	1	1	-	-	-	-	1	-
Hawaii.....	2	3	3	1	-	3	2	2	-

-Represents zero.

<sup>1</sup>Unduplicated.<sup>2</sup>Excludes plants converting entire production to solid.